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THE IMPACT OF THE UNIVERSITY PRE-INCUBATOR PROGRAMS ON THE ESTONIAN STARTUP ECOSYSTEM (ON THE EXAMPLE OF EDU & TEGU STARTER PROGRAM)

Master's thesis

Master in Business Administration (MBA)

Supervisor: Sirje Ustav

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I hereby declare that I have compiled the thesis/paper independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading. The document length is 17751 words from the introduction to the end of the conclusion.

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ABSTRACT

The main objective of this master thesis is to analyze and understand the place of the pre-incubator programs in the startup Ecosystem of Estonia and provide recommendations to particular STARTER pre-incubator program in order to increase its efficiency. The author set two research questions:

- What is the impact of the pre-incubator programs on startup ecosystem of Estonia?
- What can be done to increase the efficiency of the specific pre-incubator program (Edu & Tegu STARTER program)?

Mixed method was chosen as the most appropriate method of research. Qualitative research was made by conducting five semi-formal interviews with five different startup ecosystem stakeholders. Quantitative research was based on the summarized results of the 109 STARTER program participants' surveys.

Both qualitative and quantitative research analysis results show, that pre-incubator programs are extremely significant for startup ecosystem. Their impact is unique: they spread entrepreneurial mindset in the community and sustain the effectiveness of the further incubation stages.
Investment to the general employer's quality in the region is the other significant contribution of pre-incubator programs to the local startup ecosystem.

Moreover, the author made the efficiency analysis of the pre-incubator program STARTER, and provided several solutions in order to increase it's efficiency. First of all, the tool for tracking the pre-incubator participants' results should be implemented; four additional workshops should be included into the program; the program should have clear focus on digital sphere and support motivational atmosphere by setting meetings with successful program alumnus.

The thesis is in English and contains 100 pages of text, 3 chapters, 7 figures, 1 table.

Key words: startup ecosystem, incubator, accelerator, pre-incubator, pre-incubator program

INTRODUCTION

Startups have revolutionized the modern business world. The least they have changed is the approach to the processes of starting a business, raising investments, building a team and creating a successful business model. Successful startups are important for the economy of the country, because they create new work places and invest into the nation's GDP (Shane 2009, 143). Growing and supporting startups may become «country's economy specialization», one of the encouraged economy drivers, as it is happening in the case of Estonia.

According to the official data, Estonia was taking the 1st place in the Entrepreneurial Activity Rate, World Economic Forum 2017 (Investinestonia 2020). Moreover, one of the governmental goals, according to EAS, for 2019-2023 is «the increase of the investments and new working places, attracted to Estonia» (Enterprise Estonia 2020): that is exactly what new and successful startups do for the country's economy.

The research of Startup Genom presents, that more than 70% of the Success Factors of a unicorn depend on the ecosystem — factors out of the control of the founders (Global Startup Ecosystem Report 2019, 6). That means that significance of building sustainable startup ecosystem can not be overstated.

Estonia is constructing stable, friendly, supportive and adaptive startup ecosystem. Startup ecosystem brings together key actors and stakeholders that gravitate towards growth ventures, including new entrepreneurs, mentors, sources of talent such as universities and corporations, investors, and supporting organizations. Each and every of these elements plays its own role and contributes into ecosystem's growth, while, being combined together, they provide the ecosystem the exclusive attribute of emergence.

Although the phenomena of startup ecosystems has been in the focus of the research interest for the last several years, there is still a degree of uncertainty about the supporting organizations, especially, pre-incubators and their educational programs. While incubators and accelerators at-

tracted more reasonable amount of the academic research, pre-incubators and their programs are, from author's point of view, severely understudied.

In contrast to incubators and accelerators, pre-incubators and their program are generally associated with the «embryonic», pre-business entity, mostly targeting students and aimed to increasing the basic level of their entrepreneurial mindset. From author's point of view, there is significant gap in understanding of their role and significance in the entrepreneurial ecosystem.

Access to the data about unique, inspiring and growing Estonian ecosystem, as well as willing to contribute into the knowledge about pre-incubator programs and study their influence on the ecosystem in general, were the main motivation for the author to choose this research topic of the thesis.

Research problem and questions:
According to the The Ecosystem Lifecycle model, created by StartUp Genome, in 2019 Estonia was in the activation phase (Global Startup Ecosystem Report 2019, 99). This means, that «lack of startup experience and resource leakages to later-stage ecosystems make it difficult to grow, and one of the most important objectives for the ecosystem is to activate entrepreneurial-minded people and grow a more connected local community that helps each other».

Therefore, activating entrepreneurial-minded people is essential for Estonian startup ecosystem in order to grow and, although all of the startup ecosystem elements invest into the entrepreneurial mindset of the local community, pre-incubators and their programs are contributing the most due to their nature, and thus understanding in-depth of their role in the startup ecosystem is considered very significant.
For this reason, this paper will be focused on one approach which answers the following research questions:

1. What is the impact of the pre-incubator programs on startup ecosystem of Estonia? (Research question № 1).
2. What can be done to increase the efficiency of the specific pre-incubator program (Edu & Tegu STARTER program)? (Research question № 2).

Research objectives:

First of all, this master thesis' aim is to cover the theoretical framework of startup ecosystems and, particularly, pre-incubators and their programs.

The second objective of this research is to analyze the role of the pre-incubator programs in the Estonian startup eco-system and understand, what impact do they have on the whole startup ecosystem.

In particular, the obtained data from startup ecosystem stakeholders will be analyzed in order to:

- formulate pre-incubator program's goals;
- analyze the efficiency of STARTER pre-incubator program;
- create recommendations for STARTER program's policy makers.

Research methodology:

As it was mentioned above, this research will be focused on the pre-incubators' programs influence on the startup eco-system of Estonia on the case of one particular pre-incubator program named «Edu & Tegu STARTER». The author considered mixed method as the most applicable one due to the nature of set research questions.

Qualitative research will be done within full-circle analysis approach: the 5 semi-structured interviews will be hold with 5 different startup ecosystem stakeholders (pre-incubator coordinator, governmental representative of the «Startup Estonia», business representative, program participants). «Triple Helix» approach (Etzkowitz and Leydesdorff, 1995), exploring the relationship within the following triad: university-industry-government, will be implemented in the process of choosing potential respondents in order to reach research objectives set. The questions on the interviews will be articulated and in advance and cover relevant aspects which are analyzed in this master thesis. All interviews are recorded and transcripted for analysis purposes. Transcripts are added to the appendixes. The author aims to find patterns in the interviews with respondents, that will help to cover set research objectives and answer research questions.

Quantitative research will cover the analysis of 109 surveys, filled personally by participants of Edu & Tegu STARTER program in Tallinn, Tartu and Narva in spring of 2019. The surveys were presented to the author by Silja Lassur, program coordinator in Tallinn. The author did not have the opportunity to conduct surveys independently, because the 2020 program will not be over till the end of May.

The analysis of the surveys will be mostly used in order to answer research question № 2 and fulfill the research objective to create recommendations for STARTER program's policy makers.

The first chapter «Theoretical framework» covers literature and theoretical review of the following topics: startup ecosystem, its elements and interconnection, the link between local and global ecosystems. It also defines startup supporter organizations and states the difference between incubators and accelerators. This chapter also deals with pre-incubators, their significance to the ecosystem in general, and existing academic discussions, connected with «spreading the entrepreneurial mindset».

The second chapter is dealt with methodology and research approaches, both qualitative and quantitative, focusing on the respondents' profiles, explaining chosen «Triple Helix» approach. It also covers the information about interview protocols and describes the quantitative data source.

The third chapter presents empirical analysis and includes discussion of obtained data. Research results are being provided and supported by author's arguments. Recommendations for policy makers are articulated and presented in the third chapter as well.

1. THEORETICAL FRAMEWORK

In order understand the concepts and main definitions and to reflect the conclusions in this thesis, the author collected information and data provided in scientific materials which could be find in the references section of this thesis.

Most of the theoretical framework was taken from different research sources and academic journals. Since, as it was mentioned above, pre-incubator programs are certainly underrepresented in the current academic research, most related information was collected from other resources such as: Startup Estonia web-site, STARTER program web-site, Startup Estonia Database, Startup Ecosystem Genome annual reports, reports from European Union Committee of the regions.

1.1. Startup ecosystem.

An effective method to promote systemic innovations is to create a comprehensive environment for introducing new ideas and innovations. It is about how to link scientific pieces of knowledge and technology so that a successful and sustainable business would be cestablished. Entrepreneurship creates high quality jobs and guarantees quality of life. A regional startup ecosystem is an efficient method to endorse regional innovations and the development of the business environment along with securing the growth of the domestic product and employment in the given country (Krajcik, Formanek 2015). Thus, understanding the importance of the startup ecosystem has been constantly evolving.

Previously, the perspective was more of a question of raw resources provided in the hopes that entrepreneurs could figure out how to fit them all together (Bliemel, Flores 2014).
Currently, after the cases of Silicon Valley, Chicago Small Business Center and Beijing, all representing unique and economically and socially beneficial startup hubs (Parmvir Singh 2018),

building effective and sustainable local startup ecosystem is considered to be necessary so as to support early-stage startups and to highlight a region's speciality in terms of innovation and startup.
Discussing the role of the startup eco-system is impossible without analyzing of what constitutes the ecosystem, how these elements interact with each other, and without general reflection on the startup ecosystem place in the modern startup world.

Having the literature on the startup ecosystem topic, where most of the researches focus on the particular part of the ecosystem, studied, the author of this thesis proposes the 3D-approach «what-how-where» of the startup ecosystem analysis. This approach will let us see an entrepreneurial ecosystem concept as a whole and will provide us with a deeper analysis of the startup ecosystem, allowing us to consider ecosystem not as a «thing», but as a constantly changing phenomenon.

Within proposed approach, the author allocates and analysis 3 dimensions of any ecosystem:
- elements themselves (what),
- connection between elements (how),
- ecosystem as a part of the bigger, global ecosystem (where).

1.1.1. What is shaping the ecosystem: the elements.

«An ecosystem comprises a community of living beings whose members interact with one another and with nonliving elements in their environment» (Ives, Carpenter 2008).

In connecting the startup ecosystem (also referred in this thesis as entrepreneurial ecosystems, business ecosystems) with the general definition of the ecosystem, the author thinks it very important to define these «interacting members and elements», which differ entrepreneurial ecosystem from any other. According to Aleksi Aaltonen, there are 5 key actors in entrepreneurial ecosystems: entrepreneur and potential entrepreneurs, investors, large companies, public authorities and universities (Aaltonen 2016).
Later researches highlight the vitality of so-called «supporting factors» as elements of the ecosystems: incubators, accelerators, co-working spaces, mentors, and events (Tripathi, Oivo 2020). The other researches try to combine all the available elements into the general list: for instance, Sipola and Puhhaka claim that the «startup ecosystem….consists of entrepreneurial star-

tups, different policy agencies, incubators/accelerators, and actors providing risk capital» (Sipola, Puhakka 2013).

Apparantely, the ecosystem elements may vary depending on the startup culture level of the country, the volume of investments into the ecosystem development, governmental policies, goals, and budgets, etc. It is also important to highlight, that «it is rare to have a complete startup ecosystem that has all the needed economic actors locally present». (Eliasson 2003).

Traditionally in the literature (as by Tripathi, Oivo) the elements of the business ecosystems are, if we creturn to the most basic definition of ecosystem, referred to «living members»: people, co-founders, mentors, investors, or entities, comprising united groups of people (for example, government, policy agencies, etc.).

Nevertheless, the author of the thesis considers it crucial to discuss the «non-living elements», that members of ecosystems interact with. The business-friendly tax system could be an example of those «non-living elements», which enables the starting business to boost faster and easier, especially on the initial stages. For example, Silicon Valley startup hub has several tax benefits; Estonia has managed to build transparent tax system with zero income tax. The «e-residency» tool, providing startups opportunities and facilities regardless of their founders' citizenship or origin, implemented in Estonia, would be a prime example of those «non-living elements» of the sustainable startup ecosystem.

A more general and high-level approach to the comprehension of startup ecosystem elements, including the combinations of living an non-living ecosystem members, is provided by Spigel (Spigel 2017), defining the entrepreneurial ecosystems as 'combinations of social, political, economic, and cultural elements within a region that support the development and growth of innovative startups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assisting high-risk ventures'. He groups these attributes into three categories, such as cultural (for example, special entrepreneurial atmosphere) , social (talent, networking connections, etc.), and material (government, supporting organizations, etc.).

Thus, all the particular elements, mentioned by Aaltonen, Tripathi, Oivo or Sipola, Puhakka can be included into the model, offered by Spigel, and allocated between material, social and cultural attributes.

The author finds Spigel's approach the most functional, enabling researches to combine all the living and non-living members of the any regional ecosystem, and being able to research more abstract elements such as «startup culture». It is also the most general approach, where some elements, related to particular local ecosystem, can be present or absent without destroying the whole concept of ecosystem's elements' structure.

The elements are an important pert of any ecosystem, i.e. it is a core. However, from the author 's point of view, what is probably even more important than elements themselves is how they operate with each other.

1.1.2. Connections within the ecosystem elements.

«By examining entrepreneurial components in isolation from each other, we lose sight of the […] wholeness of entrepreneurship [and] the isolation of individual parts of the system (in analysis) does not reveal the casual mechanisms in the system" (Anderson et al. 2012).

Spigel (Spigel 2017) defined, as it was mentioned before, three big groups of ecosystem's elements: cultural, social, and material. It is important to mention, that these categories of attributes are not separated from one another. They are constructed and reproduced through their interactions.

For instance, the efficiency of accelerator programs sponsored by a local government (material attribute) depend on the preliminary level of participants' knowledge (a social attribute), influencing into their perception of new information and investing in general level of local entrepreneurial culture (cultural attribute). This relationship is illustrated in Figure 1.

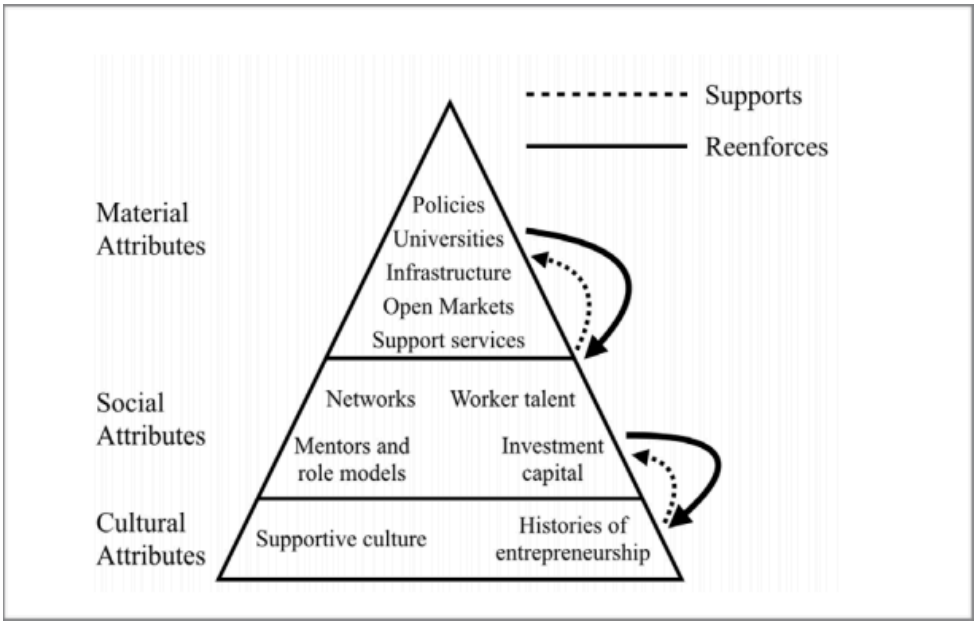

Figure 1. Relationships between attributes within entrepreneurial ecosystems

Source: Spigel, 2017.

The traditional understanding of the ecosystem as holistic object, extending to macro social, cultural, and institutional dimensions (Mack, Mayer 2015) does not seem to cover the topic deeply nowadays. «The awareness of how and how well the elements in an ecosystem are connected is crucial to comprehend how the system functions». (Motoyama, Knowlton 2016).

To receive the information about the interactions inside of the business ecosystem is not possible through studying descriptions of the way how ecosystem should be built in theory.

The empirical data can be achieved through interviews with startup founders and owners, and Motoyama and Knowlton propose to ask the following questions: «What kind of inputs or supports did you receive for your business? From whom?»

The approach of asking founders about their past experiences provides the researcher with the necessary data to identify the logic of connections that eventually create the ecosystem. That approach was implemented by the author of this thesis while conducting her qualitative research, i.e. those questions were included into the interviews with startup founders.

Breznitz and Taylor (Breznitz and Taylor 2014) maintain that even the presence of all factors of levels of the entrepreneurial ecosystem will not succeed if the social fragmentation is observed. In other words, the local high-tech industry must be locally concentrated on social networks,

which allow the growth of the ecosystem. The lack of a coherent social structure may be reason for the stagnation of the ecosystem.

Roundy, Bradshaw, Brockman (2018) have significantly contributed to the academic comprehension of the vitality of entrepreneurial ecosystem elements' interaction.

First of all, they classified startup ecosystem as a complex adaptive system (CAS), identified by six attributes: self-organization, open-but-distinct boundaries, complex components, nonlianerity, adaptability and sensitivity to initial conditions. Identifying the business ecosystem as a CAS has enabled researches to make further steps in analyzing the ecosystem and confer it with the attribute of emergence. Emergence, according to Mihata (Mihata 1997 31) is «the process by which patterns or global-level structures arise from interactive local level processes» and presents the core of the general ecosystem concept i.e. bringing all the elements together and benefiting from their interaction through significantly bigger output, than they could have shown separately.

Roundy, Bradshaw and Brockman claim that emergence of entrepreneurial ecosystems is influenced by several forces, but the most important of them is coherence in entrepreneurial activities, which is a complex phenomenon by itself. In general, «a combination of founder' actions, system-level characteristics that create coherence among entrepreneurial activities and continued injections of resources into the nascent system, stimulate further coherence among agents, which increases the emergent structuration of the ecosystem» (Roundy, Bradshaw, Brockman 2018).

Thus, the «interdependence of agents, their responses to endogenous and exogenous forces operating at the micro- and macro-levels of the complex system, and their recursive relationships produce the set of interactions out of which an ecosystem emerges» (Roundy, Bradshaw, Brockman 2018).

1.1.3. Ecosystem as a part of the global ecosystem.

It is well-known that entrepreneurship is largely a local phenomenon (Malecki 1993; Feldman 2003). Well-known startup hubs as Silicon Valley, Beijing, Tel-Aviv, and London provide unique infrastructure, stimulating startups to grow. Most of them have been or are being studied as the local success story; however, it is very important to connect all of this ecosystems in one big

global ecosystem in order to have a «helicopter view». This will give the necessary context to understand which place the ecosystem takes on the «startup map», which best practices could be adopted, which goals to set and which specialization to choose.

Openness is an attribute of any ecosystem: being a complex adaptive system, it is influenced from the outside and influences the agents behind its borders, which are flexible and continuously changing (Roundy, Bradshaw, Brockman 2018).

Although the ecosystem is a CAS itself, it also is a part of the world business ecosystem CAS, and is being influenced by global trends, ideas, entrepreneurial culture, etc.

«Startup Genome» corporation, «the world-leading innovation policy advisory and research firm, having advised the ecosystem development strategy and action plans for more than 40 governments in the last year» (Startupgenome, 2020), provides researches with the necessary context. It formulates the startup ecosystem lifecycle framework, key metrics for comparison, and ecosystem badges, aimed to highlight ecosystems' specializations. All of those criteria enable to explore the place of the local ecosystem on the global map, monitor the trends and consider future steps.

The data about Estonian bright local ecosystem, analyzed with Startup Genome metrics, will be presented and analyzed in chapter 3.

1.2. Startup supporting organizations.

Startup supporter organizations play significant role in the startup ecosystem. As it was mentioned before, they provide smooth interaction and communication between other elements and members of the ecosystem. There is a variety of entities, which can be allocated to the startup supporter organizations, including mentoring events, media channels, co-working spaces provided, etc. In the objectives of this research we should focus on most well-known startup supporter organizations: accelerators, incubators and pre-incubators.

1.2.1. Incubators and accelerators.

Both of them have, according to S. Cohen, a common goal: «they help ventures define and build their initial products, identify promising customer segments, and secure resources, including cap-

ital and employees» (Cohen 2013) and have become a vital part of any living and growing start-up ecosystem.

Although the effectiveness of the accelerators and incubators is being questioned by many researches and media, it is known, that startups that graduated from accelerator programs have approximately 23% higher survival rate than other new businesses (Regmi, Ahmed, Quinn 2015). Many successful companies have grown from the accelerator programs. For example, Bolt, Click & Grow, Bikeep, Timbeter, UpSteam in Estonia and many more others worldwide.

In order to continue with the analysis, it is important to set theoretical framework for each of the following definitions: accelerator, incubator, pre-incubator, as all of them, and especially first two, are often jumbled together.

Incubators tend to nurture nascent ventures by protecting them from the environment providing them room to grow. Accelerators, on the other hand, speed up market interactions in order to help nascent ventures adapt quickly and learn (Cohen 2013).

Accelerators can be deeper compared with incubators by four pre-determined criteria:

1. Duration. Accelerators are constructed in a more «study program» format, with a prescribed time of a start and finish, and usually last about three-six months. That explains, why accelerators encourage their residents to address market mechanisms faster. Incubators, built in a «services provided» way, suggest that firms graduate from incubators anywhere from one to five years after they begin.

2. Cohorts. Entities enter and exit the accelerator programs in groups, known as cohorts. Being involved in the different types of activities is improving connections within the cohort and also helps to build new relationships outside the cohort but within the accelerator. Incubators' approach providing more of the co-working space has less networking potential.

3. Business model. Some of the accelerators are privately owned and take an equity stake in the ventures participating in the programs, although it is important to mention that more and

more publicly backed accelerators appear. Incubators, on the other hand, are mostly publicly owned, managed by managers, and generally do not have their own investment funds.

4. Education and mentorship. Research on incubators suggests that incubator residents do not take full advantage of provided services (Hackett and Dilts 2004), while mentoring and education are often a significant reason why ventures participate in the acceleration process. Some accelerators are also resourced enough to employ full time business development advisors (Bliemel, Flores 2016).

As for accelerators and incubators the goals and differences are more or less understandable, the phenomenon of pre-incubators is relatively new and definitely understudied. Traditionally, pre-incubators are associated with the infrastructure of universities (Wirsing, Traude 2002), playing major role in pre-incubators development and growth. Further, we will consider the role of the University in shaping the pre-incubation phase of the local startup ecosystem and then narrow the research to in-depth analysis of the pre-incubator's programs.

1.2.2. University pre-incubators in startup ecosystem.

The first defined pre-incubator in Europe was established in 1997 at the University of Bielefeld in Germany (USINE 2002), and, as it follows from the name, it was strongly connected with the university. Throughout the years, universities have been playing different roles through the start-up ecosystems' development. As it is seen from the Table 1, starting from the basic input into the general nation knowledge level, the university has been extending its influence on the entrepreneurial ecosystem and currently has become an ecosystem itself (in the developed world economies, obviously).

	Definition/ applicability of the traditional systems	Application to sustainable entrepreneurial ecosystem	Application to «process-approach» startup ecosystem in 2020's
University	Research universities can have a significant impact on the evolution of an ecosystem through primary research and education of skilled workers (Bruno and Tybejee, 1982)	Research universities can create and disseminate knowledge regarding sustainability and even developing and commercializing technologies, prior impact of unsustainable behavior and raising awareness in the community at large, particularly through leading by example (Cohen 2013)	Universities become ecosystems themselves, not being identified with the research only. Being the center of creativity, science, practical approach and place for experiments and support, Universities become not just the first stage, but the fundamental base of the startup eco-system, providing necessary services to the ventures.

Table 1. University role evolution in the startup ecosystem
Source: author's compilation of (Bruno, Tybejee 1982) and (Cohen 2013). The last column is written by author.

Manuel Stagars (2014) supported the idea of the University as an ecosystem itself. He stated, that «universities are platforms» themselves. The ideal university ecosystem is aimed to create the synergy effect of all the forces, existing along.

From the author's point of view, the university has developed from the ordinary element of the ecosystem to the next level of provider of the different ecosystem elements, such as mentors, media channels, co-working spaces, pre-incubators and pre-accelerators. The connections and desired synergy effect are presented on the Figure 2 « Ideal university ecosystem and resulting synergies (Manuel Stagars 2014)» See below.

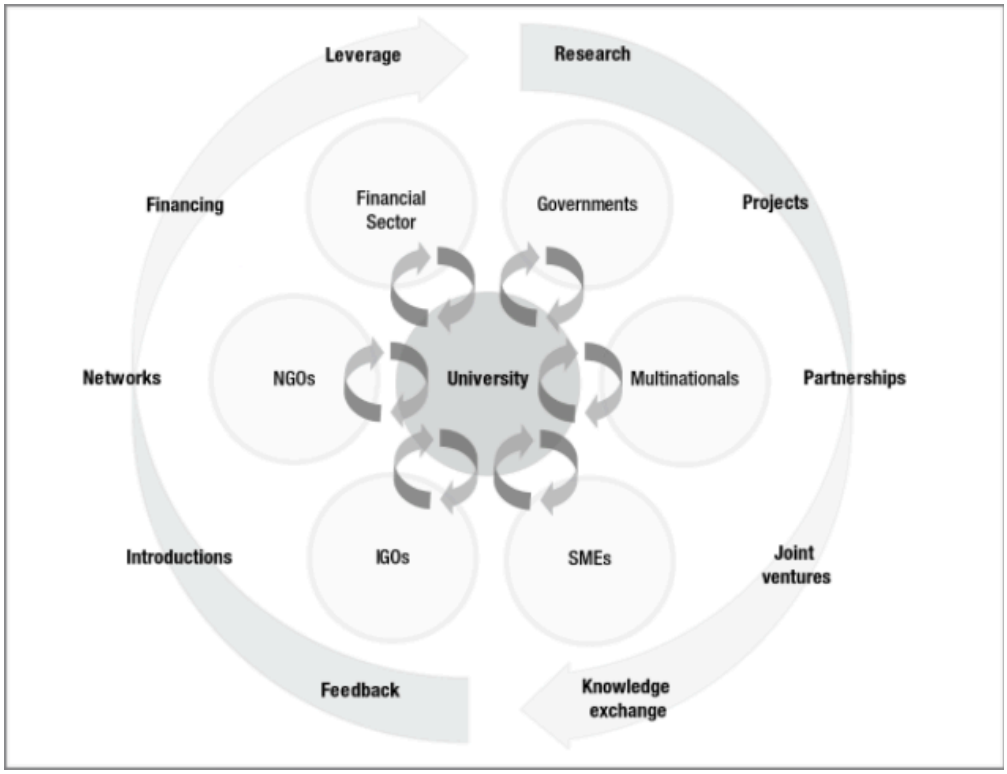

Figure 2. Ideal university ecosystem and resulting synergies

Source: (Manuel Stagars 2014, 7).

The concept of pre-incubator is traditionally associated with university and students as a targeted audience. Initially pre-incubators were designed in order to fill a gap in the local economy innovation process and enable scientists and students to exploit their research results without associated risk of the real business. (Sternberg, Otten, Tamasy 2000). Currently, the pre-incubators are still created within university entities, target students and bridge the gap between the university and the business, thus allowing a smooth transition between the different steps in the startup building process (Wirsing, Traude, 2002). Researches claim that pre-incubators offer solutions for the following major obstacles encountered by potential academic entrepreneurs are:

- lack of experience in managing a company;
- lack of know-how and personal skills;
- lack of a supporting network;
- and high financial risks.

The main difference between business incubators and pre-incubators is usually defined by the development stage of the incubatee's business. A business incubator provides its services to al-

ready founded start-up companies at the early stage of their development; a business pre-incubator supports businesses at the planning stage before they have actually become established (Kirby 2004). According to Deutschmann (2007), pre-incubators, as well as incubators, provide office space, consultancy and training, nevertheless there are some significant differences: pre-incubators provide their services usually free of charge and to «embryonic business during planning stage», focusing more on consultancy, than office space.

Therefore, pre-incubators usually exist under university «umbrella», using university facilities (laboratories, libraries, co-working spaces) and opportunities (mentoring, coaching, etc.).

1. 3 Pre-incubator programs.

The consultancy and mentoring, being most important for local pre-incubators, are expressed through pre-incubator programs, provided by universities and being a part of pre-incubator entity facilities. Pre-incubator programs are the core of any pre-incubation phase, because they provide to potential entrepreneurs access to mentoring and supporting network aligned with opportunity to work on their projects in a risk-free atmosphere, gaining managements skills and entrepreneurial mindset. Despite their importance, pre-incubator programs are underrepresented in the current academic research, mostly focused on the pre-incubators in general. Therefore, the author chose to study pre-incubator programs as the main research interest, and below provides the analysis of existing literature and her own research on this topic.

1.3.1 Definition of pre-incubator programs.

The pre-incubator program is an educational program, and it is held within pre-incubator entities, which exist in the current local startup ecosystem.

It is important to mention here that research literature is mostly referring university-associated programs for startups or students as pre-incubator programs, although the author of this thesis considers, that pre-accelerator term would be more suitable for the described entity, because it has more of the accelerator's characteristics (being constructed as a program, cohort-based netwroking, etc.). However, the author will follow the traditional definition and will continue to refer the explored programs as university pre-incubator programs.

1.3.2. Characteristics of the pre-incubator programs.

Existing academic literature provides author with the opportunity to gather and present the list of the attributes, specifically featuring the pre-incubator program.

1. Participation in the pre-incubator programs requires company not to be registered. It should be the «embryonic business on the planning stage» (Kepenek, Eser 2016).

2. A university-based pre-incubator programs provide a good training environment for potential entrepreneurs or entrepreneurial teams by putting them in active positions (Kirby 2006, 6).

3. The pre-incubation program time is limited: it may vary from a couple of months to several years, depending on the concept of pre-incubation (Kirby 2006, 7).

4. Pre-incubators programs tend to imitate the steps of the accelerator programs, except the selection step, including mentoring lectures, networking activities, idea testing, and final pitching, where winners get prizes, aimed to help them with their startups (accelerators' access, limited funding, etc.) (Kirby 2006, 7).

5. Pre-incubator programs typically use the university / universities facilities: mentors and lecturers, spaces, marketing channels. (Deutschmann 2007).

1.3.3 How significant are pre-incubator programs for the startup ecosystem?

According to the Manuel Stagars, accelerators and incubators can add a lot of value to the startup ecosystem only with the right mindset of the founders. «Without it, even the perfect ecosystem will only make a small difference» (Manuel Stagars 2004).

People, working on starting their business, first and foremost, need to have an open mind. Although they need communication and presentational skills, understanding of their value proposition and network efficiently, the right mindset is the platform, providing the soil for all the mentioned above skills to grow and develop.

An entrepreneurial mindset is quite a controversial topic in academic research. The users of the term almost universally imply that this mindset is «important as an antecedent of desirable outcomes such as resilience, creativity, innovation and new venture formation, and that the mindset can be developed and supported» (Keane, McNaughton 2019). However, the absence of clear and commonly accepted definition leads to the high level of uncertainty about the nature of the phenomenon of entrepreneurial mindset.

Finally, although the idea of seeding entrepreneurial mindset and harvesting startups with all the benefits totally makes sense, there are controversial opinions about stimulating as many people as possible to start new companies. «We also have ample evidence that when governments intervene to encourage the creation of new businesses, they stimulate people to start companies disproportionately in competitive industries with lower barriers to entry and high rates of failure» (Johnson 2004). Scott Shane (2009) develops this idea further, claiming that encouraging more people to do their businesses (what is basically one of the most eventual goals of the pre-incubator programs and the whole startup ecosystem chain) is a very bad policy by two main reasons:

1. Founders tend to choose competitive industries with lower entry barriers and fail soon.

2. Unemployed people have more tendency to start they business, because they have less to loose, while they are much less effective in running a startup due to the fact of the lack of skills and knowledge.

Thus, there is no common academic opinion about the role of the pre-incubator programs in the startup ecosystem. Although some researches mention, that pre-incubator programs increase the general level of entrepreneurial mindset in the community, the others (Johnson, Shane) point at the potential risks of such a widespread of entrepreneurial motivation.

2. METHODOLOGY AND DATA COLLECTION.

In this chapter the author describes the research methods, chosen for the data obtaining to answer research questions, formulates in the introduction:

1. What is the impact of the University pre-incubator programs on startup ecosystem of Estonia? (also referred as RQ 1);

2. What can be done to increase the efficiency of the Edu & Tegu STARTER program? (also referred as RQ 2);

Moreover, the author explores the whole research design, such as sample and data collection, resources of the research, interview protocol and analysis process.

To get a deeper understanding of the pre-incubator programs' role in the startup ecosystem of Estonia, the author combined both quantitative and qualitative researches.
Every research is described separately in the relevant section in order to provide clear understanding of the quality of the data obtained.

The qualitative research was based on the 5 deep interview with respondents, related to the Estonian's startup ecosystem and pre-incubator Edu & Tegu STARTER program (also referred as Starter program, STARTER program) in Estonia in different ways.
The quantitative research was based on the surveys, conducted by the 109 participants of the Starter program 2019-2020, autumn semester. The results of the surveys were presented to the author by Silja Lassur, program coordinator in Tallinn.

2.1 Research design: Sample and data collection

The combination of 2 research methods was used in order to get deeper understanding of the the research problem and provide profound answers to the research questions.

Due to the fact, that the first research questions (RQ 1) was articulated as «What impact does X makes on Y», it is hardly possible to use only quantitative data, researching such complex structures as ecosystems, entrepreneurial mindset, the courage to start the business, motivation to continue, etc., where the big part of the successful output lays in the subjective perception, and human emotions.

The research of the specific pre-incubator program Edu & Tegu STARTER is based mostly on the quantitative data (supported by qualitative data) to identify general trends and get deeper insights in order to answer RQ 2 and provide policy makers with specific recommendations, aimed to increase the efficiency of the Starter program.

Therefore, the research of the startup ecosystem and pre-incubator programs' influence on it is mostly based on the qualitative data due to the nature of the research, while addressing RQ 2 was due to the quantitive method of analysis.

2.1.1. Qualitative research.

The qualitative research method was also chosen because interviews are particularly useful for getting the story behind a participant's experiences. The interviewer can pursue in-depth information around the topic (McNamara 1999). Moreover, interviews are generally easier for respondent, especially if what is sought is opinions or impressions.

Therefore, the author decided to conduct five interviews with the stakeholders of the Estonian startup ecosystem, having relevance to the pre-incubation and incubation / acceleration processes in the country.

It was very important to make the the list of potential respondents diverse enough in order to get answers and data from different prospectors and angles, as by the «Triple Helix» approach

(Etzkowitz and Leydesdorff 1995), exploring the relationship within the following triad: university-industry-government.

The respondents were chosen from the following business ecosystem layers:

1. The representative of Governmental structures, responsible for ecosystem development:
Liisi Org, Startup community Development Manager.
She is a very significant respondent due to her professional experience: she provided the author with the in-depth understanding of the startup ecosystem of Estonia, and its 2020-2025 strategy. Moreover, she gave necessary context to analyze the place of the STARTER program in the ecosystem.

2. Pre-incubator program coordinator:
Silja Lasur, coordinator of the StarterTallinn program.
Silja's experience in organizing the STARTER program in Tallinn is meaningful for the author considering both research questions. She helped to understand deeper program's structure, goals, marketing and results, and also gave some recommendations for the program to be improved.

3. Pre-incubator program participant, whose participation can be called «currently successful» (started the business or went to the following incubation stage):
Byron Sowerby, participant of the StarterTallinn program in spring 2019. The CEO of the «Recovery companion». Byron Sowerby is one of the alumnus of the STARTER program, who got motivation, support and first investments within the program. His opinion about the role of the program is significant for the author, because he represents the «gold standard» of the graduate the program exists for: he participated in further accelerator programs and eventually started his own business.

4. Pre-incubator program participant, whose participation can be called «currently unsuccessful» (the person did not start a business or went to the following incubation stage during the year after the end of the program).
Anatoliy Prikladovskiy, participant of the StarterTallinn program in spring 2019.
Anatoliy Prikladovskiy, employed at «Storenzo» company as a business analyst. He participated in the STARTER program in spring of 2019. He did not win and did not start his business after

the program, nevertheless, his reflection on what was missing in the program for him, is rather meaningful for the author, especially in the part of formulating recommendations for policy makers.

5. Existing startup representative:

Alvar Lumberg, startup advisor, Engineering Lead at TransferWise.
Alvar Lumber presents an interesting combination of the employer in one of the most successful startups and, at the same time, startup advisor and mentor in several accelerator-like programs.
He posses unique opinion about the role of the pre-incubators industry-wise and provided author with several previous ideas.

The interviews were semi-formal in order to leave the flexibility in the dialogue, aligning with keeping the particularly interested points to be covered.

Due to the quarantine measures, all of the respondents were self-isolated from any social contacts, so all of the interviews were held online via Skype or Zoom. All the recordings (both video or audio format) can be presented by request.

Considering the fact, that interviews were held with people from different startup ecosystem parts, the initial list of questions differed from person to person.

The transcripts of the interviews, including both questions and answers, can be found starting from Appendix 3. None of the respondents asked to be remained as anonymous so all transcripts were included in the thesis.

2.1.2 Interview protocol

As it was mentioned above, the qualitative research was based on the semi-formal interviews with a prepared list of the questions, but with the enough flexibility to deep dive into the upcoming topics.

The author used the narrative approach to in-depth interview conversations, developed by (Maccormack 2004).

The logic of the interview consisted of the following actions steps:

Stage 1. Construct an interpretive story.

a) Re-connect with the conversation through active listening.
b) Return enriched and constructed stories to participant for comment and feedback.
c) Respond to the participant's comments.

Stage 2. Compose a personal experience narrative.

a) Temporally order the interpretive stories in a single document. This document forms the personal experience narrative. All of the interviews transcriptions are provided in the Appendix.
b) Reflect on the personal experience narrative in the light of the research question(s).
c) Add an epilogue to summarise these reflections and close the narrative.

The agenda of the interviews was formed according to the model of (De Geer, Borglund, Frostenson 2004).

It always started with the warming up section, where the goal was to set the contact with the respondent, to check the quality of the audio and video, make sure, that he/ she is in the right mood to sustain a proper dialogue. The other step was the «free description» stage, where the interviewer (the author of the thesis) was briefly describing the research questions, the lengths of the interview, asked ф question about the wish of the respondent to stay anonymous and the permission to record the conversation. The first two stages were not recorded. On the «focus» stage the interviewer started recording and asking questions from the pre-set list and use the narrative approach, mentioned above: active listening, receive interesting pieces of the answers to the respondent for the feedback and comments, etc. During the interview, the phase of «control» played an important role since it was vital to keep control over the interview's course and give direction to the respondents. Finally, at the end of the interviews, the"final" phase, the author asked the interviewees if there was any information on her research that they would like to give more insights.

2.1.3 Quantitative research.

Quantitative data was obtained from the surveys, filled by the Edu & Tegu STARTER program participants at the end of the autumn program, in 2019 in Tallinn, Tartu, Narva and Pärnu.

The surveys' results and summary were kindly presented to the author by Silja Lassur, program coordinator in Tallinn. The author did not have the opportunity to conduct surveys independently, because the 2020 program will not be over till the end of May, 2020. Using provided results, the author made content analysis of the questions asked and answers / comments provided, in order to find, follow and analyze existing trends.

The surveys embraced the main points, which are important for analysis of the program efficiency, such as the general satisfaction level of participants, their progress and achievements, plans for the future, etc. enough to analyze, what effect the program had on its participants.

The detailed information about feedback of program participants in autumn of 2019, including surveys questions, answers, some general statistics and graphs, presents a documents of 45 pages. Thus it is provided in the Appendix 4 as a link to Google drive file, where the complete document file can be easily downloaded and examined. The author used the summary of the participants answers on survey question and their comments to several questions in research goals exclusively.

The quantitative method of research was chosen align with the qualitative because of the nature of the research questions: the author's goal was to study thoroughly the role of the pre-incubator's programs on the example of Edu & Tegu STARTER program in Estonia and provide needed necessary tool to boost program's efficiency.

Therefore, in order to assess the specific program profoundly and answer research questions set, it was necessary to complement the interviews with quantitative data, focusing on such benchmarks as general satisfaction level and plans to grow within the startup ecosystem further.

Totally, survey answers of 109 respondents were analyzed within the quantitive research: 63 from StarterTallinn, 21 from StarterTartu, 25 from regional programs (15 from Narva and 10 from Pärnu).

2.2 Analysis process.

2.2.1.Qualitative research.

The interviews were approached with the narrative method, so the author was making comments and notes during the interview, and after the final stage of the interview, transcript them into a readable version of the text.

The texts of the interviews were thoroughly analyzed by the interviewer, and the most relevant to the research questions parts were highlighted in bold font.

Moreover, the answers were aligned with the theoretical background and used in relevant chapters of the thesis as supporting or disputing theoretical hypothesis and addressing research questions, set in the introduction.

2.2.2. Quantitative research.

First of all, the author thoroughly studied the questions, set by the program organizers, and participants' answers. The analysis of the questions was important for understanding what program features were in the focus of attention of organizers; which patterns they pay attention to, and what information is vital to them. That was significantly important in order to correctly address RQ 1.

Secondly, the author selected most relevant questions for the research and focused on studying answers on them, instead of analyzing all set of answers for all the questions.

Finally, while analyzing summarized results of the conducted surveys, the author was focused on finding general trends in answers, aligning them with information, obtained from the interviews and academics literature in order to provide sustainable conclusions.

3. ANALYSIS AND DISCUSSION.

3.1. Estonian Startup Ecosystem.

According to the official web-site of Startup Ecosystem Estonia (Startupestonia, 2020), Estonia has «a busy, supportive and open startup ecosystem eager to support ambitious individuals and startups». For the last several years, Estonia has made a huge breakthrough in creating the ecosystem for startups and claims itself as a technologically developed and culturally diverse country, perfect for starting and running a business within its startup ecosystem.

The results of this work are extremely significant, as, by the end of 2019, every 99th person in Estonia was somehow involved with startups (Startupestonia 2020). The clearest impact of Estonian startups on country's economy is the increasing sums of employment taxes paid. While in 2017 startups employment tax contribution was 36M EUR, it increased to 53M EUR in 2018 (+48%) and to 77M EUR in 2019 (+46%). Maarika Truu, the Head of Startup Estonia comments: "Startup sector statistics is becoming increasingly exciting, especially thanks to all of the new information we know now. Due to the obligation to employers to register their employees, we have a better understanding of what are the professions the people are employed in. The fact that 45% of the people are in the professional major group shows that we have high-quality jobs and employees in different areas." (Startupestonia, 2020)

Cofounder of Bolt and president of Estonian Startup Leaders Club, Martin Villig expects a steady growth and diversification of the sector: «Startup sector keeps growing at a steady rate of 25-30% a year. To accomplish that, the regulations of the sector have to be supportive. Our start-up sector has to stay open to global talent and global investors and keep working together with the legislators as we have with the new Commercial Code bill, which would attract even more foreign investors to Estonian startups». (Startupestonia, 2020)

According to the RQ 1of this thesis, it is particularly interesting for the author to study, what is the role of the pre-incubator programs in Estonia in this growing and developing ecosystem.

Do it have a significant impact on driving the ecosystem? Or does it have a very limited potential? And if the impact is vital, what can be done by policymakers to increase the efficiency of those programs (RQ 2)?

In order to answer both of research question, the author provides an analysis of the Estonian startup ecosystem, its elements, interconnections and its place on the global ecosystem map. In addition to it, the author studies one particular pre-incubator program (Edu & Tegu program) to offer some possible solutions solutions, aimed at the program's effectiveness increase.

3.1.1. Elements of Estonian Ecosystem.

As it was discussed above, the elements constitute the core of any entrepreneurial ecosystem. Estonia-wise, Liisi Org, development manager of the «Startup Estonia» and one of the respondents of this research, formulates the key elements of the Estonian startup ecosystsem in the following way: «startup ecosystem is about the connections between supporting organisations, startups, government, universities, media». Later she adds, that «people and talent» as significant elements for Estonian ecosystem growth.

Considering «non-living elements» of the Estonian startup ecosystem, it is important to mention that Estonian tax system is considered to be one of the most liberal in the world with zero corporate income tax.

Moreover, Estonian's know-how «e-residency», that lets digital entrepreneurs to start and manage an EU-based company online, and has brought already more than 66000 company founders in the country (E-resident, 2020), is one of those innovative startup eco-systems elements. It is particularly highlighted in the Startup Ecosystem Ranking Report 2019 as one of the biggest advantages of the Estonian startup hub, proving us with the success of this practice.

On the other hand, although bringing existing startups to the local ecosystem is good, that could unwillingly lead to Estonia playing role of just a developer center for business from the countries with top places in the startup ecosystem rating.

Supporting organizations, which was named first in Liisi Org's list of Estonian startup ecosystem elements, play crucial role in building sustainable ecosystem, and also solve the problem, mentioned above: they help to increase the output of locally grown startups. Incubators, accelerators, pre-incubators, university programs educate people to think as entrepreneur and give them unique opportunities to develop their entrepreneurial mindset and test their ideas without associated risk.

Creating Estonian, locally grown startups is, from author's opinion, even more important, than attracting existing ones, and the role of such system elements as universities, incubators and pre-incubators should be identified separately in Startup Estonia strategy for the next 5 years.

Nevertheless, it is important to mention the word «connections», that Liisi used in her definition of the ecosystem. The elements are the basic functional part of the systems, but even more important is how they operate with each other.

3.1.2. Interaction between elements within Estonian startup ecosystem.

As it was discussed above, the practical data about how elements of the local ecosystem interact with each other can be achieved through interviews with startup founders and owners, and Motoyama and Knowlton propose to ask the following questions: «What kind of inputs or supports did you receive for your business? From whom?»

The author asked those questions to startup founder during an interview with the «Recovery Companion» CEO Byron Sowerby, and his answers were significantly important for a better understanding of the connections and influence of the local ecosystem and how business can grow in the «local soil».

Byron mentions that the StarterTallinn pre-incubator program (a branch of the Edu & Tegu STARTER program, based in Tallinn), was the first, free and vital input their team got from the ecosystem. «It made us realize, that starting a business is not as scary as it seems», claims Byron.

So the supporting and motivational investment on the very first, idea-shaping stage, was enough to give a push for the company start (knowledge as an input).

Byron also names «Prototron», the next stage of the Estonian incubation system, as the second biggest input, they got, where they were financed with their first significant fundings (10 000 euros) to create the MVP. (investments as an input).

«Alujaht», Estonian accelerator program, was also referred to as an experience of what Alvar Lumberg called «forcing function for focus, when participant are not being able to do anything else time-wise», where «Recovery Companion» team was pitching and getting feedback in the very intense manner (high-level mentoring as an input).

Byron also mentioned general encouragement and a lot of advise they got from the mentors and lecturers on all the stages of their path (support as an input).

The case of the «Recovery Companion» is a illustrative example of how all of the ecosystem value chain operate together to motivate people to create something and lead them step by step to the commencement of business and support them afterwards.

The connections amongst the ecosystem elements' frame the output, and the ecosystem effectiveness. They create a set of forces through which ecosystem influence entrepreneurship (Roundy, Fayard 2018). Any system needs to be managed not exclusively participants-wise, but also from inner connections and dynamic perspective.

«Startup Estonia» organization shows a great level of understanding the importance of high-quality connections within the ecosystem. One of the most important goals for 2015-2020 for «Startup Estonia» is stated as «creating an umbrella organization», that would connect all the supporting factors with each other and help startups to grow under its dome. The review of the 2020-2025 strategy gives us a clear understanding that even more attention will be put on building connections with more and more inside element, that were not so active before. «We have not really worked with the universities, media, the governmental supporting organizations, so the main goal would be to bring all the parts together and find out the new ways to help the ecosystem grow». (Liisi Org, interview).

3.1.3. Estonian ecosystem as a part of global ecosystem.

Startup Genome is the world-leading innovation policy advisory and research firm. Every year it provides annual «Global startup ecosystem report» with analysis and discussion of all the interesting startup ecosystems world-wide.

Experts believe, that local system should endeavour to change the focus from «competing» to building a global ecosystem, where a high level of connections and culture of sharing knowledge and networks will be presented: «We have warned local leaders against "Silicon Silliness" — namely a strategy based on replicating Silicon Valley. In order to build stronger ecosystems in more places, we have focused instead on decentralized universality, working with all ecosystems to drive connectedness and enable the sharing of knowledge and networks». (Global Startup Ecosystem Report, 2019, 7).

They also claim, that the key to local success lays in the specialization: «a city/ country does not need to excel in the same industry or sector as other places. GSER shows that technology has made it possible for regions to specialize in different startup sub-sectors, such as agritech, AI, or cleantech». (Global Startup Ecosystem Report, 2019, 8).

Global startup ecosystem report provides a «compass» for local ecosystems to navigate the most efficient way to success through:

1) analysis of the current situation;

2) allocating the ecosystem to one of the phases of ecosystem lifecycle model;

3) providing recommendation to the ecosystem about moving to the next level of ecosystem lifecycle model.

The following metrics are used in the annual startup ecosystems reports (presented along with Estonia ecosystem's results):

- Software Startup Output.

It shows the number of software startups in the ecosystem.

Estonia in 2019: 500-700 vs. 1,010 global average.

- Ecosystem Value

A measure of economic impact, calculated as the value of exits and startup valuations over 2-3 previous years.

Estonia in 2019: $1,2 bn. vs. $5 bn. global median.

Average result.

- Exit Growth Index

Index of growth in tech startup exits in the ecosystem over 3 previous years. Measured on a scale of 1-10, where 10 is the highest tier of growth observed and 1 is the lowest.

Estonia in 2019: 5 points out of 10.

Average result.

- Funding Growth Index

Index of growth in early-stage funding (Seed and Series A) in tech startups in the ecosystem. Measured on a scale of 1-10, where 10 is the highest tier of growth observed and 1 is the lowest

Estonia in 2019: 2 points out of 10.

Result lower than average.

- Output Growth Index

Index of growth in total startup creation in the ecosystem, calculated in an annualized growth rate over 4 last years. Measured on a scale of 1-10, where 10 is the highest tier of growth observed and 1 is the lowest.

Estonia in 2019: 9 points out of 10.

Result higher than average.

- Total Early Stage Funding

Total Seed and Series A funding in tech startups.

Estonia in 2019: $69 m. vs $836 m. in average.

Result lower than average.

- Early Stage Funding Per Startup

Average early-stage funding per startup in the ecosystem.
Estonia in 2019: $114 k. vs $284 k. in average.
Average result.

- Software Engineer Salary

Average software engineer salary (lower is better): from Glassdoor, Salary. com, and PayScale; as well as local sources when applicable.
Estonia in 2019: $28,2 k. vs $58,3 k. in average.
Average result.

Generally, Estonia is taking the 99th place in the Global Ecosystem Ranking, being allocated in the «Activation phase» group of the ecosystems; it is included in top-10 of Affordable Talent and top-5 of activation Ecosystems in Fintech, with Cybersecurity and Fintech as sub-sector strengths.
Finding out one ecosystem's strength might become, from the author's point of view, the key driver for the development of the ecosystem. No comparatively small ecosystem can perform well and compete with places like Silicon Valley, London, Beijing, or New York across the board. But what they can do is to become a hub of excellence in specific startup sub-sectors and use that advantage to improve the ecosystem and the economy.

Understanding the growing and strong sectors of country's economy should also be spread all through the supporting elements of the local startup ecosystem to founders and potential founders in order to avoid «quick start-fail dilemma» (Scott Shane 2009), when entrepreneur is very bad at picking industries and choosing the ones that are easiest to enter, not the ones that are best for start-up (Johnson 2004), and fail due to the high rivalry level.

For example, according to Estonian Startup Database, for April, 2020, only 4% of Estonian start-tups belong to CyberTech sector and 12% - to FinTech, which makes a total of less then 20% of the whole startup output being developed in the strong fields of the country's sub-sector (Startu-pestonia 2020). The «quick start-fail dilemma» was deeper discussed in part 1.3.3 of this theses.

As it was mentioned above, Estonian startup ecosystem belongs to the first stage of the ecosystem lifecycle: activation phase. Generally, «Startup Genome» describes four stages in this lifecycle: activation, globalization, attraction and integration, each with a respectively growing number of startup output, its specific characteristics and requirements to switch to the next phase.

Estonia has relatively low start output: total 992 startups for April, 2020, out of which 26 startups are on the «idea» phase and 387 are on the «MVP/ Seed stage». Estonia's biggest challenges are lack of startup experience and resource leakages to later-stage ecosystems. By recommendations of the «Startup Genome», Estonia must focus its forces on increasing startup output amount and attract more early-stage funding.

The goal of 1000 startups, set by «Startup Estonia» 2015-2020 strategy, has already been achieved. Nevertheless, it is very important to grow these startups, as far as possible, and preferably, create new ones in the sectors of Cybertech and Fintech.

The other important objective for Estonia to step onto the next ecosystem level is to «activate entrepreneurial-minded people and grow a more connected local community that helps each other» (Global Startup Ecosystem Report 2019, 99).

This is the place, where university, incubators, pre-incubators, accelerators and other supporting organizations should be the most active ecosystem members. Moreover, for Estonia that means, that special attention should be paid to pre-incubators and their programs, because they are the entities, directly responsible for activation of entrepreneurial-minded people.

The following chapter will provide deeper information on the system of startup pre-incubation in Estonia.

3.2. Pre-incubation in the Estonian startup ecosystem.

According to Silja Lassur, one of the respondents of this thesis's research, the main difference between pre-incubators and incubators or accelerators is that pre-incubation is before the real incubation, because participants come only with idea, while for the incubators and accelerators

they should have a team, registered company, sometimes an MVP in order to show that they «have a thing».

According to the other respondent, Liisi Org, the University pre-incubator programs are allocated to the mindset phase, where people can invent and try their ideas, along with the programs for teenagers (for example, «Future Hero» program in Estonia).

All of that actually aligns with most of the researches' opinion: pre-incubation is aimed for «embryonic business on the planning stage» (Kepenek, Eser 2016).

3.2.1 Overview of Estonian pre-incubation stage.

«Startup Estonia», governmental organization, is responsible for the development of the Estonian business ecosystem. There is a strong connection, in their vision, of the stages of typical startup development with the related services they can get from the startup infrastructure environment.

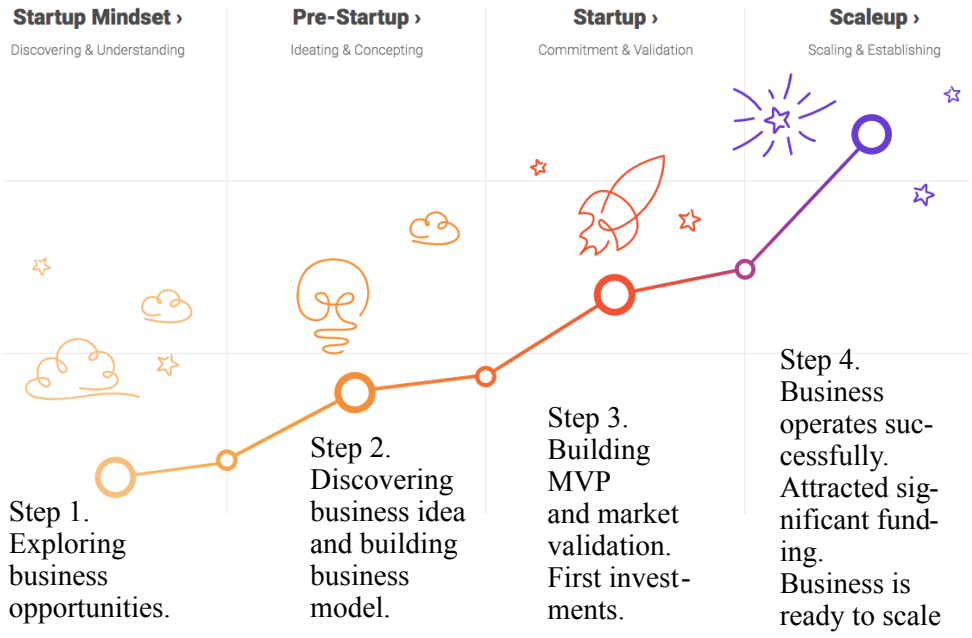

Figure 3. Steps of the typical startup development and main features of allocated ventures, belonging to relevant stages

Source: picture is retrieved from website of the Startup Estonia (Startupestonia, 2020). Descriptions are made by the author.

Depending on the startup stage of development, it may use different services provided by the ecosystem's infrastructure. The pre-incubator facilities lay in two first stages: «Startup mindset» and «pre-startup», aiming to spread entrepreneurial mindset and help potential ventures to discover and develop their business idea and business model.

There are several pre-incubation options, mentioned on the official website:

1. TalTech Mektory. Pre-incubator for seed startup. It is providing several services to students and start-up teams who can participate in the Edu & Tegu STARTER pre-incubation program, start-up competitions, hackathons and use different labs in order to build their first prototypes.

2. Tallinn University pre-incubation programs. Tallinn University offers several entrepreneurship programs, like Startertallinn, Startup Passion, Loomehäkk, and others, but also specific courses like ELU. It is the place where students can turn their ideas into business by participating in hackathons, entrepreneurship programs, competitions, mentoring events or passing the compulsory course ELU (Enhanced Learning Unlimited).

3. The University of Tartu IdeaLab. It is providing pre-incubation services (workshops, consultation, collaboration with experts and scientists) for all students and University of Tartu early-stage start-up teams.

4. Edu & Tegu Starter program. The program is free of charge and does not require any previous knowledge of entrepreneurship. Two main Starter programs run twice a year and you can choose between StarterTallinn (led by Tallinn University and TalTech) and StarterTartu (Tartu University), depending on where you live. In the spring semester, sub-program Starter-Haapsalu is also active in Tallinn University Haapsalu College. In autumn semester three regional sub-programs can be chosen: StarterPärnu, StarterNarva, and StarterKohtla-järve.

As it becomes clear from the overview of the pre-incubation facilities, there are several options, based on the potential startup location, that provide classical incubation services (laboratories,

working spaces, mentor support, etc.) for the pre-startups, who are just starting to develop their idea: Tallinn University pre-incubation program, TalTech Mektory, Tartu University IdeaLab.

Nevertheless, all of them unite in developing the last above-mentioned pre-incubator program, «Edu & Tegu STARTER program», that resembles mostly the traditional pre-acceleration program. This is, in the author's opinion, an effective combination, which focuses on the universities' involvement in the developing of the startup ecosystem in Estonia, combining pre-acceleration and pre-incubation services aimed to cover the most of students' startup potential.

The main difference between the pre-incubation facilities and the pre-incubator programs, available for Estonian students, is in the different objectives pursued. Pre-incubation facilities are available for students, who had already participated in the Edu & Tegu STARTER pre-incubator programs or other startup competitions and have developed the business idea, that needs particular facilities to be tested.

Edu & Tegu STARTER program, however, focuses more on the seeding an entrepreneurial mindset and helping people to choose the idea and cast a team.

As author's main research interest lays mostly in the sphere of the pre-incubator programs, the next following chapters cover the description and analysis of the Estonian pre-incubator programs.

3.2.2. Estonian pre-incubator program's goals.

The formulation of the program's goals is extremely important in order to answer both RQs.
A clear understanding of the goals, set for the pre-incubator programs, would help the author to identify their role in the ecosystem (and to respond to RQ 1).
Moreover, understanding the goals would also provide the author the framework for analyzing how well this goals are achieved, and eventually, the author would be able to answer RQ 2 - what can be done in order to increase the efficiency of the program.

The formulation of program's goals has been performed by the author based on the answers of respondents from a qualitative research and the analysis of Estonian's ecosystem structure.

1. Entrepreneurial mindset planting. Spreading entrepreneurial skills and knowledge to as wider group as possible. Raising awareness of the education spirit. (Silja Lassur, «The main goal of the program is to spread entrepreneurial skills and knowledge to as wider group as possible and the awareness raising of the entrepreneurial spirit»);

2. Educational. To give students the knowledge, the skills, the tools on how projects are developed from the very start. (Silja Lassur: «And the main aim is actually educational: to give the knowledge, the skills, the tools of how to develop their idea in the future»);

3. Ecosystem «push». Ventures are expected to be moving to the next incubation phase in the ecosystem value chain. (Silja Lassur: «we enable some teams to continue in different incubation and acceleration programs, so we are the first part of the ecosystem value chain»);

4. Startup output increase. To increase the eventual number of startups. (increasing of the startup output is eventual goal of all the startup ecosystems. Pre-incubators exist to increase the startup output - but, most probably, with the help of the other ecosystem elements);

5. Networking goal. Building the team and improve relationship inside and outside the cohort. (Liisi Org: «I think i is about the overall growth that you get out of it. World is kind of wide. It is also kind of experience you get when you go to study and work abroad. You see that you are not your own world, you see a lot of people with similar or different ideas, and you are growing from these.»);

6. Motivational. Atmosphere, where you can get valuable feedback and make mistakes, getting the new experience. (Liisi Org: «the failing culture starts there…this is about brainstorming, new ideas and being brave and getting a lot of feedback from there»).

3.2.3 Significance of pre-incubator programs in Estonia.

What becomes clear from the qualitative research for this thesis is that startup mindset is significantly vital for the the whole startup ecosystem. Both Silja Lassur and Liisi Org use the words «courage» and «brave», answering the question about the business mindset. It is when «you are not afraid to think out of the box and to start something and take risks», it tells you «to be more bold, to think like visionary, to embrace risks and vision; we all need it more to turn our lives». (Silja Lassur, Liisi Org Inteviews).

Considering that pre-incubation's main goal is to spread entrepreneurial skills and knowledge to the broader group as possible, it turns out to be not just the first and basic, but most important stage of the whole startup ecosystem. «Those TalTech and Tartu University programs are super important, they are one of the most important things, I would say. And also accelerator Aujujaht, where we see a lot of young people there nowadays, more and more - and I think that one of the reasons why is that we have those pre-incubation programs. I think we need to build more of them, really» (Liisi Org).

Moreover, there is quite a innovative opinion about the role of the pre-incubator programs, provided by one of the respondents, Alvar Lumberg, one of the well-known Estonian startup advisors and currently an employee in TransferWise. He claims, that, from his experience, not everyone can be educated to become an entrepreneur, but, however, the right, entrepreneurial mindset make help to create much better and qualified employees, for example, product managers, that have balanced understanding for customer- focused design and building a business.

«When we talk about the lean startup mindset, product development principles, when we look at the startup - two or three people, just getting off the ground, then all these principles are relevant. But they are just as relevant when you start whatever in the large corporation. It is still about making minimum investments to get maximum confidence in the environment of uncertainty». (Alvar Lumber, Interview).

That brings us to the conclusion that seeding entrepreneurial mindset is not only about starting new companies, but about improving everyone's, whether startupers or employees, mindset to

become more responsible, creative, pro-active and problem-solving, and that is the unique investment in general country's entrepreneurial ecosystem.

Nevertheless, there is an opinion in the academic research, discussed in paragraph 1.3.3, that there are a lot of inefficiency and risks in a broad spreading of entrepreneurial mindset.

Two supporting arguments were provided in order to support that opinion:

1. Founders tend to choose competitive industries with lower entry barriers and fail soon.
2. Unemployed people have more tendency to start they business, because they have less to loose, while they are much less effective in running a startup due to the fact of the lack of skills and knowledge. (Johnson 2004, Shane 2009).

Aligning this information with the analysis of the Estonian ecosystem, the author considers, that she might offer possible solutions for the Estonian pre-incubators to overcome these weaknesses and make seeding of the entrepreneurial mindset as efficient as it should be.

First of all, the program of the pre-incubators should be focused more on the choosing the right industry sector. For the development of the Estonian ecosystem it is very important to develop sub-sector strengths (Cybertech and Fintech) in order to grow the ecosystem and provide potential ventures with the information about most invested spheres.

Probably, there should be an extra section in the mentoring part of the pre-incubator programs, devoted to the sectors of the economy, their rates, and index metrics.

Moreover, considering the second point, it is less applicable to startups, because unemployed people tend to start not startups, but usual businesses, far from technologies. The idea of focusing on the students as a targeted audience of the university pre-incubators programs is, from the author's point of view, absolutely correct. Student have enough of the free time, courage and mind flexibility to start something new, to build new connections, to learn quickly and perform productively. Meanwhile, they can not be allocated amongst «unemployed with nothing to loose», because they are just starting their life path and have the opportunity to make a choice.
Therefore, providing pre-incubation services to the students and devoting some mentoring time to the importance of choosing the right industry sector could significantly reduce the risks of the

«quick start-fail dilemma», descried by Shane (Shane, 2009), and help startups to be generally healthier and grow eventually to the efficiency and scaling stages.

The other critics of the pre-incubators position in the startup ecosystem is connected with the measuring their effectiveness. It is very hard to provide framework that could help to measure the effectiveness of the pre-incubator programs, because it is the seeding stage, when shoots and results may appear in different times and in different circumstances, sometimes even unexpectedly.

According to Liisi Org, to measure the output of the pre-incubators, «…you would need a lot of data, connecting the right dots together, if this person, who attended Edu & Tegu STARTER program, is developing his own company now». But she is 100% confident in one thing: «if those programs would not exist, we would not have so many startups and that supportive startup ecosystem».

The author will provide analysis of the STARTER program in the following chapter, and further will try to offer solution, solving the problem of measuring pre-incubator programs' efficiency.

3.3.«Edu & Tegu STARTER PROGRAM».

3.3.1 Edu & Tegu STARTER program description.

Edu & Tegu Starter program (Starter program, STARTER program) is a pre-incubator program, designed and conducted by eight Estonian universities (Tallinn University, Tallinn University of Technology, University of Tartu, Estonian Business School, EKA, Eesti Muusika-ja teatriakadeemia, Estonian Entrepreneurship University of Applied Sciences, Eesti Maaülikool). The program lasts for 3 months and takes place two times a year, in autumn and spring semester. It is completely free for participants, and does not require any previous knowledge of entrepreneurship. It is held in Tallinn, Tartu, Narva, Pärnu, Kohtla-Järve and Haapsalu. Every year there are about 140-150 participating teams in all the cities.

According to the program coordinator in Tallinn Silja Lassur, there are several different types of events in the program, e.g. seminars, workshops, feedback sessions, one big mentoring event and finally a competition. All of the teams have their supervisor, who provides them with regular feedback during the organized sessions and online during the whole program. The workshops are on the different topic, relevant to starting the company: value proposition, business model development, design thinking, marketing skills, some legal and financial issues.

In the spring of 2019, in StarterTallinn program there were six workshops and three officially organized feedback session out of thirteen meeting during three months (all the provided topics and the other events are covered in the list of the program events in the Appendix 1).

The program is actually built as a competition, ending with the pitching ideas in front of the expert jury and other teams, and rewarding the winners. Moreover, the winners may get access to the next levels of incubation: for example, the «Recovery Companion», which won Grand prix in the spring semester of 2019, was automatically enrolled in the Prototron incubator. In addition, the diploma / certificate is issued upon program completion.

There are more than 50 mentors and best industry experts involved in teaching entrepreneurial skills to young people. The particular requirement for the speaker/mentor is his/her English skills, also the practical experience of the field, so she/he is working or has worked in the area where they are teaching. Coordinators get get three proposals and choose the least costly, but beforehand the invitations to become a mentor/supervisor or a speaker, are sent to the the recommended or well-known professionals.

The information about the program is spread by three main channels, i.e. university students lists, printed media (posters, leaflets, etc.), Internet media (e.g. Facebook groups and communities).
Coordinators also talk to the entrepreneurship lecturers in order to combine their lectures with the practical workshops and promote the program amongst their students. Furthemore, it has become known to the author, that, in some cases, upon completion of the program, participants may obtain three credit points in their universities, so it might be motivating as well.

3.3.2 Edu & Tegu PROGRAM analysis of efficiency.

Edu & Tegu STARTER program is, without any doubts, a clear example of the local pre-incubator program. As to the «corse-like» organized nature (limited duration, specific start and end dates, etc.), it could be called pre-accelerator, but following the tradition, the author will keep calling it the pre-incubator program. Nevertheless, to answer the author's RQ 2 (What can be done to increase the efficiency of the Edu & Tegu STARTER program?), the author should analyze the existing data: results of the fall-2019 participants surveys and interviews of the involved members. There were 109 respondents out of 332 participants, 63 from StarterTallinn, 21 from StarterTartu, 25 from regional programs (15 from Narva and 10 from Pärnu).

Silja Lassur kindly provided the author with summarized results of the conducted surveys, where the best analysis approach, from the author point of view, is description of the information and finding general trends with the following conclusions.The quantitative data is focusing on such benchmarks as general satisfaction level and plans to grow within the startup ecosystem further.

According to the research data obtained, the author was able to formulate the main objectives of the pre-incubator programs. They were discussed above and remain relevant for the specific Edu & Tegu program. The pre-incubator program goals are used as a framework for analysis of efficiency of the pre-incubator program. With each and every goal, the results of the surveys and comments of the respondents are discussed in order to decide how far this goal has been achieved. The objectives are rated by the level of importance, according to the interviews of the program coordinators and governmental representatives.

Edu & Tegu STARTER objectives:

1. Entrepreneurial mindset planting. Disseminating entrepreneurial skills and knowledge to a wider group as possible. Raising awareness about the true essence of education.

This is the first and most important goal, differentiating pre-incubation phase from all the next levels of the incubation and acceleration. Despite the fact that subsequent phases of incubation undoubtedly invest in the growth of the entrepreneurial mindset, they mainly work with people with a particular level of this mindset, who already have an idea, the team and awareness about what kind of business they want to set up.

In contrast, pre-incubator programs are targeted towards people with less or zero level of involvement in the startup culture, seeding the idea that running a startup and having more ownership could be the real option for them. This objective, no matter how wide and important it may be, is also extremely hard to measure in terms of success, and the results may show themselves in unpredictable times and unexpected ways.

For example, Alvar Lumberg claimed, that entrepreneurial mindset planting might not be expressed in starting new businesses, but in general improvement of the startup employee quality, i.e. more of the ownership and other 21st century competencies. The results of surveys actually support this idea with approximately 78% of the respondents answered «Yes» to the question, if their entrepreneurial competences (implementing business ideas, self-management, solving social situations, value-creating thinking and finding solutions) improved during the program. Out of this set of skills, the first two most common answers (25% and 25% respectively) are «Finding solutions» and «Value-creating thinking», which are not necessarily associated with running a business.

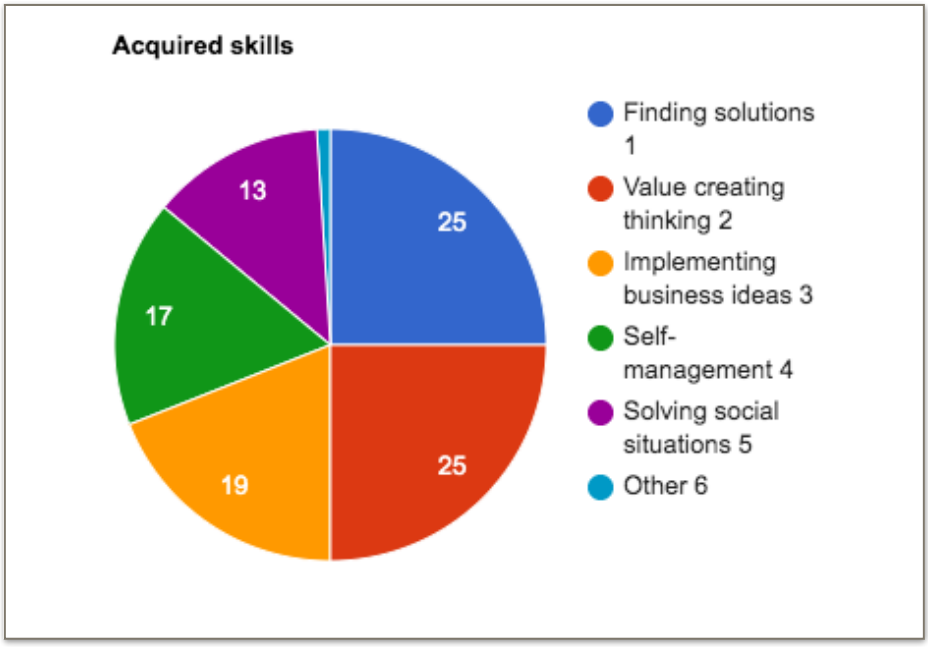

Figure 4. The skills improved after the StarterTallinn program by participants' perception (2019, autumn), %.

Source: summarized results of surveys, presented to the author by Silja Lassur (Appendix 4).

According to Liisi Org, in order to understand the real efficiency of the entrepreneurial mindset planting goal of the Edu & Tegu STARTER would «need a lot of data, connecting the right dots together and understand, if this person, who attended Starter program, is developing his own company now».

Nevertheless, 43% of the respondents say that their main expectations from the program were «knowledge about entrepreneurship, startups, startup community, starting a business, etc.». That means that almost a half of all the participants' main motivation of attendance is to get general understanding of the startup opportunities in the country, and only a few point to such a specific goal as «Create a startup» (2%) or «Find Investor» (1%).

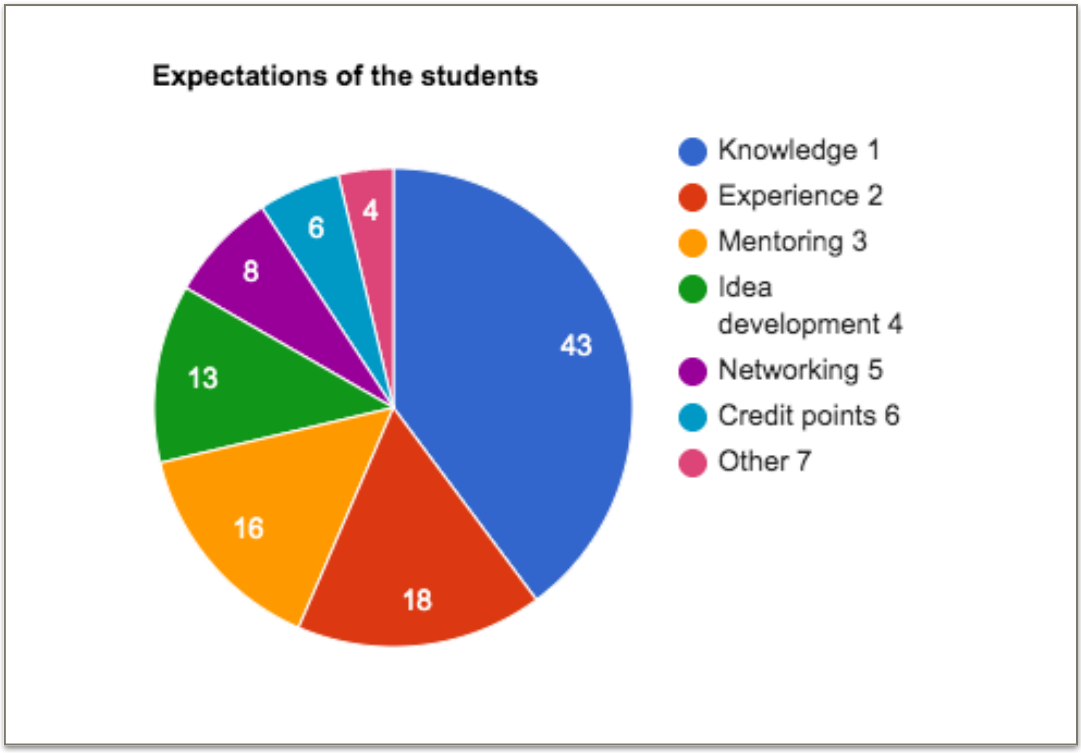

Figure 5. Expectations of the STARTER program participants (2019, autumn),%

Source: summarized results of surveys, presented to the author by Silja Lassur (Appendix 4).

That shows high level of program presentation to the students: «Learn everything about entrepreneurship» is a clear and understandable message on the main page of the Edu & Tegu STARTER web-site (Starteridea 2020).

The conclusion is supported by Byron Sowerby, participant of the StarterTallinn in 2019, who says that his expectations about the program were: «initially just to learn and take things as they come….I have never had this expectation of going down this path and push it and push it and push, because I am still trying to learn about how everything works».

The author of this thesis concludes that the main goal of the both parts, program coordinators and participants, is the ability to «test» the entrepreneurial environment, become aware about opportunities and risks of starting a startup and decide, if that is something, that person wants to be part of.
Due to the quantitative data, most of the participants received what they expected: only 11% were not satisfied with how the STARTER program responded to their expectations. According to the interview with Anatolyi Prykladosvky, StarterTallin participant in spring of 2019, the program was useful for him, but he would find it more educating if it would be less general: «I would make it for less people and with higher focus on result. We had some people who were not motivated about the program, came just to be there. Some kind of filtering should be done from the beginning».

That note seem to make sense: about 7% of the participants, according to the surveys, had never had an intention to start a business: they just wanted to get credit points, etc. On the other hand, the restriction of the selection might contradict with the idea of seeding and spreading of the entrepreneurial mindset as broad as possible.

The author considers that although some amendments should be done in the program organizational structure, primary selection process is not an object for a change: every student , willing to participate, should be accepted, because it aligns the most with the pre-incubator's objectives.

2. Educational goal. To give students the knowledge, the skills, the tools on how projects are developed from the idea.

«Developing ideas» was the second most frequent answer during the interview process with program coordinators on the question about the main goals of the pre-incubators.

Due to the fact that the program is aimed to be as practical as possible, the participants are expected to go through all the typical startup-building stages, and it always starts from developing the business idea. However, only 13% of survey respondents chose «idea development» as their expectation of the program (see Figure № 5). That might be explained by a low level of initial understanding, what exactly will be going on at the program.

According to one of the participant's comments, StarterTallinn program «helped us to understand the broader context of starting a business and understanding the state quarters. It basically just gave a spectrum of understanding that I did not have before. It gave the confidence to narrow approach. Something I had never properly known how to do». However, 12% of the survey respondents did not find the program helping them to develop their business idea well. They gave different anonymous comments, among which:

«Compulsory and too fast division into groups without understanding what to begin with and what the result must be». That becomes understandable, if we study the example of the program schedule, provided in the Appendix 1. Two main topics, creating teams and developing ideas, are combined and presented just in one workshop «Forming teams and generating ideas».

The atmosphere in the team is crucial for the quality of the team's output and results. Teamwork quality has positive effects on the relationship between…skills and team efficiency, while having negative effects on the relationship between creative-thinking skills and both team efficiency and effectiveness (Hoegl, Parboteeah 2007). Recently created teams might been gathered too quickly and sloppy, leading to the discomfort and low level of creativity and productivity in developing the idea.

According to comments of Shoukat Bizinjo, the participant of the StarterTallinn in spring, 2019, who did not have initial team and was trying to built one within a program: «Team formation is the foremost and most crucial step for success of an any such short term project of three to five months, etc. After one week two fellows joined in. Some couple of meetings passed, and two of

them left». He says that he was expecting committed people with complete interest in the topic and said that it would be smart of him to have their initial agreement on the deadlines, meetings and discussions. Therefore, he was not able to built a proper team and develop his idea.

There were at least four comments on the lack of feedback from the mentors and supervisors during the course and at least five comments about the lack of the new information on the program.

Those two problems - lack of feedback and new, useful information may lay in the program organizational logic and / or in the mentor / supervisor low level of involvement.

3. Ecosystem «push». Ventures are expected to be moving to the next incubation phase in the ecosystem value chain.
4. Startup output increase. To increase the eventual number of startups.

These objectives are strongly connected: the whole incubator and supporter organization ecosystem exists in order to increase the startup output and their life lengths. Nevertheless, from the author point of view, it is important to divide the startup ecosystem long-term goals and more precise, more short-term goals of the particular pre-incubator program. «I think like basically from pre-incubation you are not so ready yet to start a business», claims one of the respondents, Liisi Org.

That is why both of these objectives were included into the list of the pre-incubator goals: the increase of the startup output like an eventual goal, a mission, a reason to exist; and the moving to the next incubation phase as a more real, achievable goal, letting us mark a particular pre-incubator program as relatively successful.

Considering the data from the surveys, 76% of the respondents feel more or less ready to start their own company during the next three years. Participants mentioned, that they felt motivated and inspired to start something of their own. Nevertheless, they almost do not mention specific business-wise goals and plans.

On the contrary, 21% of the participants do not feel ready to start their business in the three following years.

Several main reasons, why participants did not feel ready, were mentioned in the given comments, and the author classified them into three groups:

1. The participant never had an initial motivation to be en entrepreneur (took the course to get credit points, etc.)
2. That is too early for participant: he does not have enough knowledge and skills yet; plans to graduate first.
3. The participant does not understand, how to get investments.

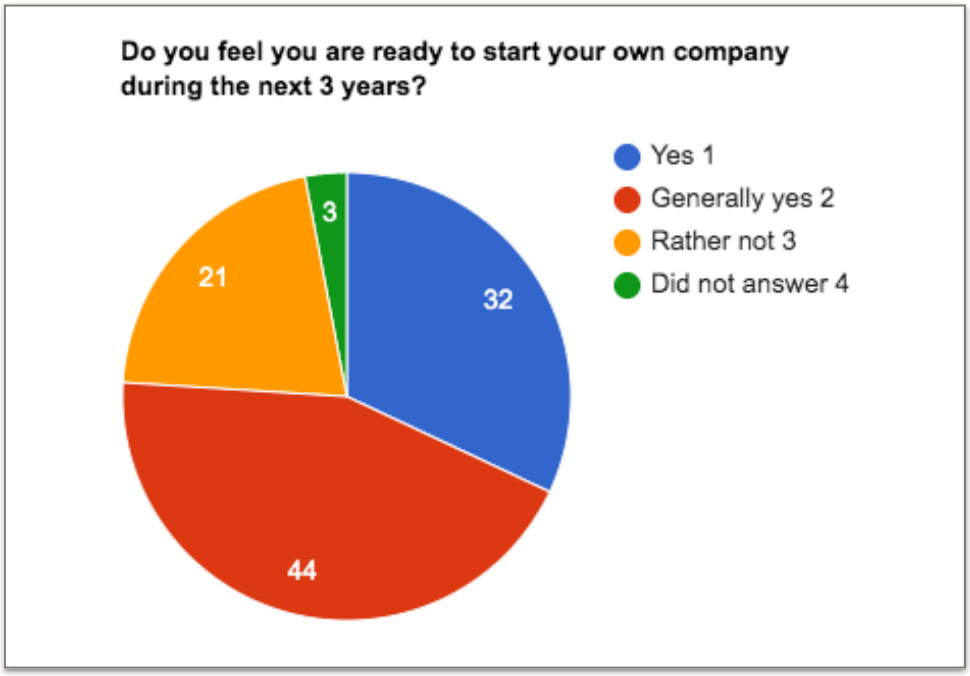

Figure 6. The intentions of participants about starting their business during the next 3 years, %.

Source: summarized results of surveys, presented to the author by Silja Lassur (Appendix 4).

It is precisely interesting to address the results of the survey covering the question «What are your further intentions regarding the idea / business model you developed during STARTER?».

35% would like to continue the development of their idea but without the help of the further incubation programs. That might be brought by several reasons:

- they feel confidence enough to work by themselves, without any help from aside (that actually correlates with 76% of participants feeling ready to start their business immediately after the program completion);
- they realize, that incubators have very high entrance barrier and do not want to spend their time and efforts on trying to get there;
- they are disappointed with the incubation system in general (that does not actually correlate with the general level of program satisfaction 85%).

The author considers, based on the qualitative data obtained, that this 35% of participants do not have enough information about what else they can get on the next levels of incubation, what they have not got on STARTER program.

An almost equal amount of respondents (17% and 18% respectively) plan to quit the activities for some time, but the first group plans to continue to the developed idea, while the second group plans to start developing the other idea. 13% plan to continue with the incubation phase, and 10% plan to quit startup activities completely.

That is important to notice that 13%, planning to apply for the incubator program, have different expectations about the next incubation phases, then they had for the STARTER program.

At least 26% of them expect to get guidance on financing and 28% expect to get technical help.

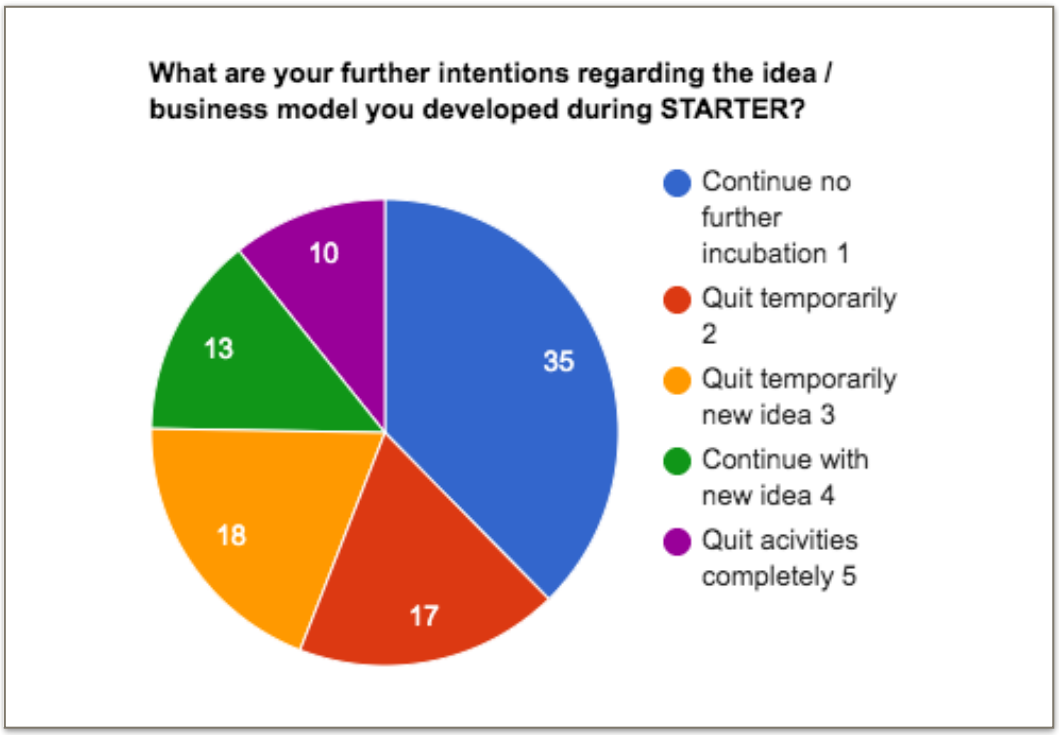

Figure 7. Further plans regarding the idea/business model participants developed, %.

Source: summarized results of surveys, presented to the author by Silja Lassur (Appendix 4).

In order to fully assess the efficiency of the STARER program, it would be useful to track each participating team for at least several three-five years and try to understand, if the seeded startup mindset grew into a created business/incubator participation. Unfortunately, there is no a data or research like this, so the author had to do some sampling and study not all the STARTER program participants since 2016, but only the announced winners (3 for each semester).

The observation of those teams was based on two simple questions, correlating with two pre-incubators' goals, being described in this paragraph:

- how many of those winning startup ideas were developed into a real startup?
- how many of those winning teams went to the next incubation level?

On the official Edu & Tegu STARTER program website there was an information about 18 alumni teams that were the winners of the annual competitions. Due to the fact that «Makery» team was not able to be tracked completely, the author monitored all the other 17 teams to answer questions, mentioned above. In order to answer the first question, if the startup is currently alive, the author proposed the following criteria:

- the startup is presented in the Estonian Startup database;
- the startup has working web-site / application;
- the startup has Facebook group, last updated not later then a month before;

The presence of at least one of these factors would be enough to consider the startup alive. In the absence of these criteria, the author concluded that most probably, the startup was inactive. Leaving some level of uncertainty was necessary because there was still a little chance that the startup continued its activity under a different name or was on the idea-development phase and would grow into something else very soon. The detailed results of the conducted research are presented in the summary table in the Appendix 2.

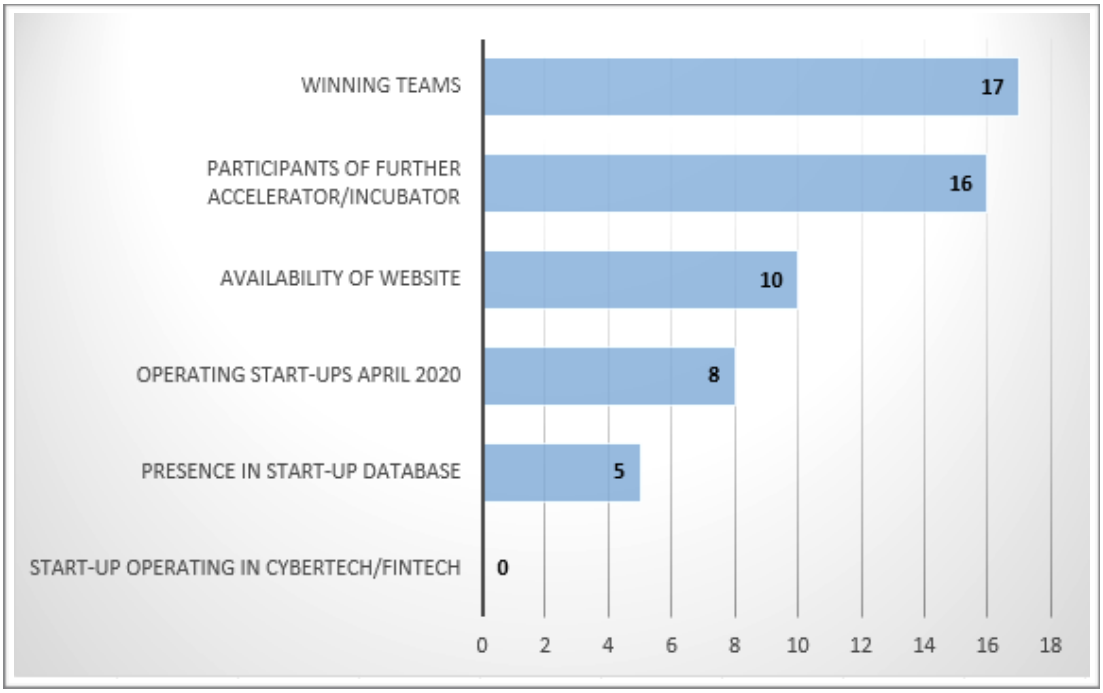

Figure 7. Summary of the research results of the analysis of Starter program winning teams' startup status 2016-2019.

Source: author's brief summary of conducted research (Appendix 2).

The observation results revealed that out of 17 winning teams in Edu & Tegu STARTER program, eight startups were active for April, 2020, which is a 47% success rate, considering the startup output one of the program's goals. 16 teams out of the 17 winning teams participated in different further incubation programs (NGAL, Alujaht, Prototron, etc.), and 100% of them partic-

ipated in different high-level startup pitching events. It is important to note that none of the start-up ideas from the 17 winning teams' belonged to the Cybertech or Fintech, which, according to the data of Startup Genome research, should be the main drivers of Estonian startup ecosystem.

Studying the results of winning teams may let us come closer to the right conclusion about the pre-incubator program potential forces and how the goals, set by the organizers, might be eventuated.

In general, this data aligns with the estimations, which are made by Silja Lassur: «After the program I would say it is two or three teams will start a company, right after the program or even at the end of the program» and Liisi Org (10% of the whole participant amount, from her perception, continue whether in running the business or moving to the next incubation phase) in our interviews.

Nevertheless, the necessity of gathering more detailed data about the STARTER program participants' further steps in startup ecosystem can not be underestimated. It would enable a deeper understanding of the impact of the pre-incubation phase on the Estonian startup ecosystem, if it would be possible to track most of the participants' paths.

4. Networking goal. Building the team and improve relationship inside and outside the cohort.

Networking was mentioned mostly by Liisi Org, as one of important goals. She said: «I also think they <pre-incubator programs> are educating in a way that you will need a lot of other people with similar ideas, and with them you can go with your own team and do something of your own. In comparison, I would say that at school you have a lot of people, but you don't know who want to do the same thing, for example, and if you go to that programs you usually find the team and you are like - that is really cool, let's do it together». Development of business-associated communication skills is a really significant part of the program, highlights Liisi.

According to the survey results, the average size of the team in the beginning of the STARTER program was 4,09, when at the end of the program it was 3,96 people. That means that in average the team size has become smaller. The author discussed a bit of the difficulty of team building in the paragraph, devoted to «educational» goal of the program.

However, the author discovered that many of the teams were built before the program even started: many participants came with their friends or classmates they wanted to be in the team and work with. According to the recent Harvard research, «prior social connections, which are often a source of knowledge and influence, can limit new interactions and thus the ability of organizations to leverage peer effects to improve the performance of their members» (Hasan, Koning 2019).

People, coming to the program in already developed teams, might not experience the networking opportunities as effectively as opposed to those who had to interact with others more and assembled a team within a program. That might decrease the efficiency of so much expected «networking effect», when people come to the program and enrich their outlook and knowledge not only from lectors and mentors, but also mutually from each other. Only 4% of the participants noticed, that teamwork as a entrepreneurial competence improved during STARTER program.

5. Motivational. Atmosphere, where students can get valuable feedback and make mistakes, getting the new experience.

One of the indisputable goals of the program was creating and disseminating startup atmosphere, associated with blame-free environment, the ability to make mistakes and fail, gaining confidence and courage of the entrepreneur. All of this features are parts of the entrepreneurial mindset, and the program was aiming to provide the right motivation for participants.

The CEO of the «Recovery Companion» remembered in the interview, that «I would name Prototron and STARTER Tallinn that encouraged us». As added Liisi Org, «startup mindset for me is how all the companies kind of should work, it is ok to fail sometimes, but then you just need to get up sometimes and start working on something else or something better. And this circle continues until you find something that works».

Considering 76% of participants, who felt confident enough to start their company during the next 3 years after just a three-months program; strong and bright supporting coverage all over the social media; the atmosphere of celebration on the last pitching event, where author had an op-

portunity to present herself, she would consider this goal as one of the most successfully achieved for a moment.

3.3.3. Recommendations for Edu & Tegu PROGRAM policy makers.

The analysis of both qualitative and quantitive data, provided in the previous chapter, has given the author significant arguments to make particular conclusions and answer properly the second research question:

«What can be done to increase the efficiency of the Edu & Tegu STARTER program?»

The author provides several proposals, from her perspective that may boost the efficiency of the STARTER program if being implemented. The increase of the efficiency of the program will have to be evident in better/easier/more effective achievements of the program goals, further research, and participants' satisfaction level.

1. Participants' results tracking.
The most important thing in improving and sustaining program's efficiency is to monitor its participants' results as it was carried out in the previous chapter (on the example of 17 STARTER winning teams of 2016-2019). Because the mission of the pre-incubator program is to increase eventual startup output and considering the limitations (results of the program may reveal themselves several years after the participant's graduation), it would be important to track how many people, starting their business in Estonia, took part in STARTER program and any other incubators.

Checking the connection between a) participation in the STARTER program, b) participation in any other incubator, c) starting the business would bring valuable information both for the program coordinators / startup ecosystem government agencies and further researches. It would also provide a better understanding of the correlation between pre-incubator programs and new business start-ups, even if the corruption is evident after five, seven or more years. The figures would allow us to draw more precise conclusions about the overall effectiveness of an organization that supports ecosystems, and improve them if needed.

Liisi Org comments on the situation regarding the lack of specific data on the effectiveness of pre-incubators.: ‘It is very relevant questions, and I am also very interested in that. If you find out, how efficient they are, I would be really happy to know it’.

From the author’s perspective, it can be carried out by two general approaches. The first implies that program coordinators, volunteers, and administrators will contact all participants manually every year and ask them to answer questions about their current status. This seems to be a very inefficient way to collect data, requiring too much personal work and time, and a high risk of ‘silent’ responses.

Another approach could be implemented with the support of the government side. The author suggests adding an extra question to the e-business register questionnaire to establish a new company. The questionnaire will be a multiple-choice question and could be formulated as ‘Have you participated in any pre-incubation, incubation or acceleration programs in Estonia before?’, and a list of all incubation options should follow. The data will be anonymous and available only for research or administrative goals. As encouraging your entrepreneurs to get enrolled into the next incubation level is one of the goals of pre-incubator programs as well, it seems advisable to add a question ‘Have you participated in the STARTER program in Estonia before?’ in the application forms of all the significant incubators and accelerators, such as Prototron, Alujaht, Alpine House, etc.

The results of these actions implemented will be a clear understanding of the correlation amongst participation in pre-incubators, incubators, and starting new businesses, which is extremely important for decision-making and improvement processes.

2. Idea selection feedback workshop.

According to the data analyzed in the previous chapter, many participants have faced with some difficulties while choosing and developing a proper idea and building teams around this idea. As to the respondents’ answers, they encounter some difficulties while choosing a good idea and finding a team with a good idea, everything happened too quickly, and people realized too late that the idea was not good enough, for example, on the final pitching stage.

The author proposes to create a separate workshop, which is aimed at giving immediate feedback on the chosen idea for the team to be confident in the quality of the idea to proceed to work with it. For example, there could be short pitching organized, where teams/individuals could tell about their ideas (1-2 minutes), while other participants could provide their feedback. In addition to that, those who have not got a team could join the team and the idea, which they liked.

It will also help to increase the networking efficiency level, i.e. groups of several friends, who came to the program together, could be split into teams depending on the ideas they liked and receive all the networking synergy benefits.

3. Workshop about Estonian startup ecosystem benefits.

According to the research findings, 35% of respondents who want to continue developing their business idea after the program, do not clearly understand, how other incubators or accelerators can be useful to them. This is a rather unsatisfactory figure, considering that 'pushing' participants to the next level of the incubation infrastructure is one of the pre-incubator's goals.

Moreover, many respondents mentioned that the lack of investment hinders their further business development. The author proposes to include in the program of the workshop observation of other incubators and accelerators opportunities, as well as the benefits they can bring to new-born ventures, including financial and investment options.

4. Meetings with successful ex-participants of STARTER program.

Although many successful STARTER alumni make some presentations and lectures within the program, the author believes that communication between ex-participants and current participants should be more informal, organized in a format of live meetings and workshops. It will help to increase encouragement level and generally supporting and inspiring atmosphere, which is also one of the program's goals. This will help to support and inspire participants increasing their interest in general, which is also one of the objectives of the program.

5. Workshop on investments options.

Along with the information regarding further available incubation steps, it is crucial to apprise participants of all existing investment options, such as public programs and entertainment; venture capital and angel investors, FFF (family, friends, fan investment), and crowdfunding.

As Byron Sowerby says, ‘I definitely recommend crowdfunding, having that as an aspect of it’. It will give many ideas a chance to survive due to the gathering investments not from the professional or state investors, but through the closest FFF network or finding supporters on crowdfunding platforms.

6. Industry areas insight workshop.
In order to avoid 'a quick start-fail dilemma' (Shane 2009), the business should be started in less competitive areas to have a better chance to survive. According to the recommendations of the Startup Genome, the Estonian ecosystem should focus on Cybertech and Fintech specialization.

Nevertheless, the rate of startups in these areas is less than 20% for April 2020. The author believes that participants should be further encouraged to choose these areas to start companies and have a general understanding of the opportunities which are laid there

7. Digital ideas to be encouraged.
According to one of the respondents, 'our mentors told us that every idea could turn in a great business or startup. When many people did not have ideas in technologies, some wanted to start a restaurant, others wanted to manufacture things, you know. And in the end, all of the winners were people with application ideas or web-sited, or platforms. I think they should inform everyone in the beginning that we are interested in technological companies, not just random cafes or cosmetic shops'.

This means that program coordinators should choose a holistic approach: whether they motivate participants to start only digital and tech-oriented businesses or allow them to create whatever they want, but divide participants into bigger cohorts, depending on the chosen field (digital, manufacturing, services, retail, etc.).

CONCLUSION

The main objective of this master thesis was to analyze and understand the place of the pre-incubator programs in the startup Ecosystem of Estonia and provide recommendations to particular STARTER pre-incubator program in order to increase its efficiency.
Pursing this goal, the author, first of all, studied existing academic literature about startup ecosystems, supporting organizations, pre-incubation and pre-incubator programs. Secondly, conducted qualitative research and analyses of quantitative data, that helped her to formulate incubator program's goals and, finally, used them as a framework for further analysis of STARTER program efficiency in order to provide recommendations for policy makers.

The main driver of author's research interest was due to the underrepresentation of pre-incubator's programs in current academic research. The role, these pre-incubators are intended to play, the expectations from them, their objectives - all that points stayed very unclear, as there were no officially stated goals or designed metric of effectiveness analysis. Moreover, the author participated in STARTER Tallinn pre-incubator program as well, and desire to understand - how many of participating team actually start their companies, what are the possible further ways for winning teams, how many people started thinking differently after the program - takes roots in that personal experience.

Mixed method was chosen as the most appropriate method of research. Qualitative research was made by conducting five semi-formal interviews with five different startup ecosystem stakeholders (from university, industry and government sides, according to «Triple helix approach»). The interviews were analyzed and transcripted; most relevant ideas were highlighted bold. The transcriptions are attached to this thesis starting from Appendix 3.
Qualitative research was based on the summarized results of the 109 STARTER program perticipants' surveys, that was presented to the author by Silja Lassur, program coordinator in Tallinn. The author made content analysis of the questions asked and answers / comments provided, in order to find, follow and analyze existing trends.

The first research question of this thesis was:
What is the impact of the pre-incubator programs on startup ecosystem of Estonia? (Research question № 1, RQ 1).

Both qualitative and quantitative research analysis results show high level of significance of pre-incubator programs and highlight their unique impact on the startup ecosystem of Estonia.
Pre-incubator programs target many goals: educating students business-wise, motivating them to develop their skills and, most importantly, spreading entrepreneurial skills and knowledge to as wider group as possible. Despite the existing academic critics of «wide seeding of entrepreneurial mindset», the author considers this goal the most crucial one.

First of all, it is important to understand, that pre-incubators constitute as «preparatory», basic foundation for the whole startup ecosystem. Even though the amount of founded startups after pre-incubator programs is much smaller, than after usual accelerators, pre-incubator programs «prepare the soil» for them. Without pre-incubation phase, the whole output of usual incubators and accelerators would be much smaller. There would be stay significant amount of people, who would not even think about starting a company and would not participate in accelerator programs, requiring considerably high level of entrepreneurial mindset and working prototype/ existing team / meaningful idea at the very selection stage.

Secondly, even though not all of the participants of pre-incubator programs would become entrepreneurs, spreading entrepreneurial mindset contributes into the startup ecosystem not just straightforwardly. 78% of the respondents mentioned, that their entrepreneurial competences – implementing business ideas, self-management, solving social situations, value-creating thinking and finding solutions – improved during the program. These skills are not necessarily associated with running a business, they invest into general level of community's professionalism; high level of entrepreneurial mindset creates responsible, creative, smart and pro-active employers, helping already founded startups to sustainably grow.

Finally, the results of the analysis of the sampling group show, that 100% of winning teams participated in further incubation stages, therefore pre-incubators provide usual accelerators and in-

cubators with better prepared, more experienced participants, which would not even take part in the selection process otherwise.

Therefore, pre-incubators play crucial role in «activating entrepreneurial-minded people», that is a mandatory condition for Estonian ecosystem to grow and go to the next phase of the ecosystem lifecycle, according to experts from Startup Genome.

The second research question of this thesis was stated as:

What can be done to increase the efficiency of the specific pre-incubator program (Edu & Tegu STARTER program)? (Research question № 2).

STARTER program is a great example of a local pre-incubator program with all the necessary attributes: no initial selection process, networking and mentoring, pitching at the end and valuable prizes. Generally, the survey results show high level of satisfaction of participants: only 11% were not satisfied with how the STARTER program responded to their expectations. Nevertheless, understanding the crucial importance of pre-incubator programs for the whole startup ecosystem of Estonia, the author made efficiency analysis and provided the list of recommendations, that could enable STARTER program policy makers to achieve their goals more efficiently.

The most important recommendation would be to implement convenient system of participants' results tracking. Governmental and university representatives both mentioned, that understanding the correlation between participation in the program and starting a business would be very useful. In the discussion and analysis part the author offered relatively simple solution to track this correlation without involving much of routine manual labor.

Secondly, four more workshops should be included into the program's schedule:

- workshop about Estonian ecosystem benefits (in order to motivate participants to take part in further incubator and accelerator stages);
- workshop about investments options (to provide chance for success to those ideas, that did not get venture capital through alternative financing sources);
- idea selection feedback workshop (in order to improve the «networking synergy effect» results);

- industry areas insight workshop (to avoid «quick start-fail dilemma» and help Estonian ecosystem grow within its strong sub-sectors).

Moreover, in order to support motivational atmosphere (that is one of articulated goals of pre-incubator programs), the author suggest to organize a special meeting with successful ex-participants of STARTER program at least one time during the program.

Finally, the author finds it very important to especially encourage students to start their projects in the digital space. That would help to bring more venture capital, because digital projects are easily scalable and usually gain much more investments on the earlier stages.

In order to have a useful research, aligned with practical recommendations for policymakers, the author of this thesis narrowed the research to a local startup system of Estonia. As a limitation for this approach, the elements of the startup ecosystem in Estonia were not equally covered.

A further research could be based on monitoring of more pre-incubator program participants and manually building correlation models, linking the participation in the pre-incubator program, and participants' career path.

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APPENDICES

Appendix 1. « STARTER TALLINN» program schedule, spring 2019.

1	15.02	Launch Event of the business idea development program STARTERtallinn Spring 2019.
2	18.02	Workshop «Forming teams and generating ideas»
3	25.02	Workshop «Business Models and Value Proposition»
4	04.03	Feedback Session №1: Finalizing teams and canvas
5	11.03	Workshop «Design Thinking (and Prototyping)»
6	18.03	Feedback Session №2: Finalizing the one-liner, practicing pitch for the mentor evening SSDN.
7	27.03	Startup Speed Dating Night (SSDN). (Big mentor event, where all teams have an excellent opportunity to get feedback to their idea and tips for further actions from different experts and mentors (over 50 mentors will participate)
8	1.04	Workshop: «Go-to-Market Strategy (The basics of Sales and Marketing)»
9	8.04	Workshop: «What should you know about finances, taxes and legal issues»
10	15.04	Feedback Session №3. All about onepager.
11	22.04	Workshop «Perfect Pitching – how to present your idea?»
12	29.04	STARTERtallinn Preliminary Rounds I
13	06.05	STARTERtallinn Preliminary Rounds II

Appendix 2. Analysis of Edu & Tegu STARTER winners' currents startup profiles.

Startup name	Idea description	Edu & Tegu STARTER Program alumni	OTHER INCUBATOR / accelerator participation	Startup database presence	Working website / application	Facebook page last post date	Startup active?
Hirehunt (Move on miles)	Hirehunt (now Move on Miles) is powerful recruitment hub, helping companies hire the top talents fast and on a scale using the crowdsourced power of multiple recruiters, direct staffing and referrals.	+	ABC Accelerator top-3	-	-	22.02. 2017	Most probably, no
Konku	Konku is a web and mobile application that provides rental ads without estate agent fees.	+	NGAL, 2nd place	-	-	15.06. 2017	Most probably, no
Ethico Foods	Ethico Food develops and manufactures a range of healthy, vegan, high-protein, soy & gluten free food products that has the taste and texture of meat.	+	University Startup World Cup 2017 in CopenhagenFirst Prize in the GreenTech category and the prize money of $5000.	-	-	30.11. 2017	Most probably, no
Cody	Cody is a personal coding platform that teaches coding like Lingvist teaches languages with numerous interactive exercises.	+	Alujant top-10 NGAL	-	-	-	Most probably, no
Wrap Cafe Wrap´n ´Roll	Wrap caffe	+	Most probably, no	-	https://www.vrapikohvik.ee/		yes

Decomer Technology	Decomer Technology develops bioprotein-based bioplastics, which they currently use for packaging honey. Bioplastic dissolves in hot tea water and is not harmful to health, therefore it is an eco-friendly and convenient alternative to sugar.	+	2017 autumn Kaleidoskoop Alujaht Prototron	+ € 292 k invested	https://www.decom-ertechnolo-gy.com/	15.04. 2020	yes. Product-market fit stage
MTÜ Kohalugu	A mobile application that enables the user to discover the city through literature or other cultural content.	+	2017 autumn Kaleidoskoop	-	http://www.ko-halugu.e-du.ee/ Application does not work.	-	Most probably, no
MoleQL (Subatomic OÜ)	Interactive chemistry lab for conducting exper iments in AR right on your mobile or tablet	+	Latitude59 conference, Startup Day in Tartu and at Young European Innovators forum Unconvention in Brussels Prototron top-40	-	-	-	Most probably, no
ArtiSun (LaavaTech)	ArtiSun has invented a cheaper and a more environmental way to produce LED lighting for greenhouses. Their solution increases yield as well as decreases light pollution.	+	Third place on the TTÜ Mektory Startup Competition 2017; February 2018 ArtiSun won the Polar Bear Pitching 2018 in Oulu, Finland University Startup World Cup	+ Turnover 4Q 2019: € 21.1 k	https://laavatech.com/	-	yes, MVP / seed stage
ILUSPEKTER	eCommerce retail of vegan and cruelty-free make-up and skincare products.	+	Kaleidoskoop pitching competition	-	https://ilus-pekter.com/	15.04. 2020	yes

TRIT	Team TRIT develops a solution for the translation service. TRIT is developing tech to make quality human translation more accessible, transparent and comparable.	+	Team TRIT won the main award - tickets to European Innovation Academy in Portugal from Kaleidoskoop Finals at sTARTUp Day 2019.	+ Employment taxes 4Q 2019: € 1.1 k	https://trit.pro/	16.10.2019	yes, idea stage
Io Developers	Io Developers are developing optical eyeglasses that are controlled via mobile app or manually and allow customers to continuously asjust focus on the objects regard to their vision.	+	University Startup World Cup in Copenhagen. They also won second place in pitching competition of the international business development programme NGAL	-	-	-	Most probably, no
ÄngFree	Team ÄngFree makes stress dolls from recycled materials. T	+	500 euros Inspiration Prize from Tallinn Entreprise Department and special prizes from Cleantech ForEst and Ajujaht and a special prize from Funderbeam	-	-	-	Most probably, no

Appendix 2 continued

Times Smart Indicators	Timey produces a “smart” best before indicator for cold-chain food products.	+	* TalTech Mektory preincuba-tion program STARTERte ch Spring 2018 Grand Prix (Partic-ipation at the University Startup World Cup 2018 in Copenhagen, Denmark plus special prizes from Avokaado and Ajujaht); * Tehnopol Prototron Spring 2018 winner (5500 eur); * Network Globally Act Locally 2018 winner (3000 dollar-it); * Taltech Mektory Startup Competition 2018 Second Place (+ special prize from Fund-wise); * The BEST STARTER TEAM 2018 * Ajujaht 2019 winner (30000	+ Employ ment taxes 4Q 2019: € 2.2 k	https://www.-timey.ltd/	6.05. 2019	yes
Recovery Companion	To provide better support for the psycho social needs of patients, the team is building a peer-to-peer communication platform: Recovery Companion.	+	Prototron Alujaht	+ € 25 k invested	http://recov-companion.-com	14.04. 2020	yes, product-developm ent stage

CompAct	CompAct is automating and simplifying the way Green Offices are run.	+	2018 Q4 Ajujaht TOP30 (+access to the development program) TalTech Mektory Startup Competition GRAND PRIX and the BEST STARTERtech TEAM + special prizes from Avokaado and EstBan Climathon I place + 4 special prizes Loomehäkk I place + 4 special prizes 2019 Q1–Q3 Pilot with Tehnopol Prototron TOP40 6-months Startup Incubator program in Tehnopol Pitch at 5th Annual Impact Investing & Frugal Innovation Conference InnoFrugal 2019 NGAL I place ClimateLaunchpad national finals II place Å Pitch II place Pilots with Tele2, Tieto and other partners	+	compact.ee	15.04. 2020	yes, MVP / seed stage

OhhSaNugis	OhhSaNugis is a sustainable brand of comics based clothes designed to bring encouragment and joy into our often unglamorous day-to-day lives.	+	Inspiration prize at the STARTERtallinn Spring 2019 Demo Day and several special prizes.	-	https://www.san-drasilver.ee/	30.03.20	Most probably, yes

Appendix 3: Interview with Liisi Org.

Liisi Org is a Startup community Development Manager

The interview was done on 7th of April 2020 at 10:00 by Skype. The interview was done in English and transcripted. The interview was 24 minutes.

Warm up section.

1. What are you responsible for in the Startup Estonia? What are you responsible for?

My position name is startup community development manager. It is super wide: the responsibilities go from one place to another, but **my main responsibility is to take care of the startup supporter organization in Estonia.** We have 100 of them. By supporter organizations I mean bigger events, like Latitude and Startup Day and co-working spaces, then incubators, accelerators, VC-funds, mindset organizations for young people. I am basically here to support them and helping them out all the ways it is possible. They can apply for the government money, they can attend the procurements, they get support overall. We have Slack channel, we have Facebook channel, they can ask a lot of questions and so on.

But there is also one big part, where I am also kind of responsible for representing StartUp Estonia in bigger events, when something in Estonia happens, like Latitude 59 or StartUP Day or whatever. But what I did not mention yet is startups, supporting startups through different offers, like TVTS, sometimes when there are coming some offers - let's take example of the last year - we got an email from South Korea, that asked for 3 Estonian startups, so I am the one who is choosing those startups. Working with database also - my responsibilities are kind of endless, I am kind of doing all the things, but I would say, that my main thing is supporter organizations, they are who I am interacting the most.

2. What is the startup ecosystem, in general?

In my opinion **startup ecosystem is very general. It is not just about place, it is basically about all the connections.** What we say in Estonia, that e**cosystem is supporter organizations and startups, and also government, universities, media organizations.** Basically, I can send you one picture from our strategy, what we consider as the ecosystem in Estonia, and we are trying to get those parts all together. It is basically the Estonian ecosystem, where we want to bring universities, supporter organizations, people, talent, so on together - and this is the whole ecosystem. But of course when we talk about not only Estonia, there are also other countries, and this is also my responsibility to talk to partner organization of Startup Estonia, and kind of get

those connections as well. Id startup asks me «I want to go to France, do you know anyone I can get contact?», - this is another level, so **there is one local ecosystem and there is a global one.** What we are also really trying to develop and that is really necessary when we talk about the fact, that Estonia is not a market for any startup.

3. Could you describe goals and perspectives for the startup ecosystem in Estonia?

Startup Estonia started in 2015, it was a five year program, and our next strategy is ready for the next 5 years, but it still in the drafts, not super official. It will be ready in June or July, so we will present it to the larger public. Last strategy and goal was - why actually Startup Estonia was brought to life - that **we wanted to have some kind of umbrella organization, that is connecting all that startup supporter organizations and basically help startups through that.** We also had one number goal, that was **1000 startups by the end of 2020**, now we kind of have achieved it. We already had 1000 startups in our database, right now the number is kind of - some are dying, the others ae born again - it is pretty much going from one number to another and back again. Basically, that was one of the number goal. If I am not mistake, then I think, the next goals would be to connect the ecosystem even more, because we have not really worked with a lot of Universities or scientists or media organizations or there are other government organizations, that should be supporting that.

We have Enterprise Estonia, they are really helpful, and the e-residence as well. But the main goal would be to bring other not is active parts together and find new ways for the ecosystem to grow.

4. From your perspective, what is the role of the pre-incubation stage in the startup ecosystem? Why do those pre-incubators exist?

I think they are the one of the most important parts of the ecosystem. I don't know how old are you, but I when I was young, like 14 or 19, I definitely did not have that kind of programs at my school or university. I didn't even have a knowledge that they exist or something. I am really jealous of these 14 years girls, getting the part of those «SuperHero» programs.

This is the mindset phase, where you start really early and you can see that I can do this, I can grow my own company, I can do amazing things. But t**he pre-incubation phase is usual**

ly already at the universities, when you are studying something or researching something and think «Ok, I can grow it into a business». Those TalTech and Tartu University programs with developing are super important, they are one of the most important things, I would say. And also Aujujaht, we see a lot of young people there nowadays, more and more - and I think **that is one of the reasons from those pre-incubation programs. I think we need to build more of them**, really.

5. Please, name three main goals of those university pre-incubator programs.

I think about i as what I would get from there: I could **brainstorm my ideas**, f**ail - and the failing culture starts there**, it is ok not to do this, when I do this, it is also ok.

Basically, I think **this is brainstorming new ideas and being brave** and **getting a lot of feedback** from there. Usually at school you have to think one thing, but at these pre-incubation programs you see, that people brainstorm, people come up with new ideas,

I think it is very motivating to see where your ideas can take you.

I also think **they are educating in a way that you will need a lot of other people with similar ideas**, and with that you can go with your own team and do something of your own.

In comparison, I would say that at school you have a lot of people, but you don't know who want to do the same thing, for example, and if you go to that programs you usually find the team and you are like - that is really cool, let's do it together.

Third one - I think it is about the **overall growth that you get out of it.** World is kind of wide. It is also kind of experience you get when you go to study and work abroad. You see that you are not your own world, you see a lot of people with similar or different ideas, and you are growing from these.

I kind of described things that people can get from the pre-incubation program and never attended one. I have seen inside of those many, and I mentored Future Heroes and some other programs and competitions, but I have never seen what people really think, why do they come there, what is there motivation. That would be really cool.

5. For your personal perception, how efficient these pre-incubators are?

It is actually very relevant questions, and I am also very interested in that. I**f you find out, how efficient they are, I would be really happy to know it.** And we were actually trying to research it in a way how these programs affect young people to go into the next phase. We know stories that there was a guy dropped out of the University, because he was attending one of those programs - and he was also working in Transferwise, I think. We know some of those stories. We know the journey of one startup founder in several cases, but we don't know the general statistics, and that would be super useful if someone researched it on the scientific level. There was one guy from Tartu University, who wanted to do that, I don't know how far he got with that, but basically **you would need a lot of data, connecting the right dots together. «Is this person, who attended Starter program developing his own company now».** But one thing I can say: **if those programs would not exist, we would not have so many startups and that supportive startup ecosystem. So i think, this is my perception, that 10% continue.**

- You mean, 10% continue with their own business or with the next level of incubation?

Both. I think like basically **from pre-incubation you are not so ready yet to start a business, but maybe you don't even have to go to the next level - you can start developing your idea alone** at home, and then come out and start a startup. I know a lot of startup founders who only go to incubation, incubation, accelerator. It is super helpful to go to the incubation or acceleration, because you see a lot of people who can help you, get a lot of mentoring, but I also know a lot of people who are developing their idea at home, that is also totally fine.

Of course we need those programs to start something from people minds «I can do this». If you are at home, you are usually like «On, not me. Let the others do it». If you are going to the program, you get the motivation, but I think you can go to the next level of incubation or continue at home.

6. How would you describe a startup mindset?

Basically, startup mindset question came up when I was giving the interview to startup day blog. I would still answer the same, I am going just to send you the link there. There is the question, what I also answered there: **«Startup mindset tells you to be more bold, to think like visionary, to embrace risks and vision, we all need it more to turn our lives. Startup mindset for me is how all the companies kind of should work, it is ok to fail sometimes, but then you**

just need to get up sometimes and start working on something else or something better. And this circle continues until you find something that works».

You should have bigger goals and try things out until something comes up.

Appendix 4: Interview with Silja Lassur.

Silja Lassur is a Startup community Development Manager in Starter Program.
The interview was done on 7th of April 2020 at 10:00 by Skype. The interview was done in English and transcripted. The interview was 24 minutes.

Warm up section.

1. What do you do in the StarterTallinn program? What is your position and responsibilities?
I am coordinator of the program. I am from Tallin University Side, and Kristy Tatar is from TalTech side, so we are are the main coordinators of the program.

2. What is the difference between pre-incubator University program and the actual startup incubator?
The main difference is that **pre-incubation is before the real incubation, because to our program the participants come only with idea.** To the real program, they should have company registered or some kind of a mock up to show that they have a **real thing**, why they are going to the program. But **in our program everybody is free to participate**, and they will make the teams in the program and develop their idea to the business model, which enables to register the company if they choose to do it in the end.

3. You mentioned, that people come to the program to develop the idea to the business model and to create some teams. Would you name it the main goals of the program or there are some other goals?
The main goal of the program is to spread entrepreneurial skills and knowledge to as wider group as possible and the awareness raising of the entrepreneurial spirit. And the main aim is actually educational: **to give the knowledge, the skills, the tools of how to develop their idea in the future.**
But the second goal is that **we enable some teams to continue in different incubation and acceleration programs, so we are the first part of the ecosystem value chain.**

4. How would you describe the startup mindset, entrepreneurial mindset?

I think **it is a courage to start something**. When you are not afraid to **think out of the box** and to start something new and **make risks.**

5. What is the logic of how the «StarterTallinn» program is organized?

It has three different types of things: we have **workshops**, we have **feedback sessions**, we have **big mentoring event** and the **competition in the end.** All of the teams have their supervisor. The workshops are on the different themes, but we check their relevance to starting the company, it is about value proposition and business model development, it is about design thinking of your product or service, it is about marketing skills. some legal issues, and in the end also the pitching skills, that you can communicate your idea. All of these we find relevant for starting companies, and also we see that the workshops should be quite **practical**, so they can develop their ideas on the workshop. **It is not only a lecture place.** And every team has a supervisor, with whom they can discuss their development via emails, and previously we had these feedback session, where they could get feedback personally.

-But now you do not have these session anymore?

- Now we don't have organized feedback sessions. but all the teams communicate via Skype or email.
- Why did you decide to cancel those meetings?
- It is coronavirus, it is just for now. Right now we also have lectures and workshops, any meting in online.
- Do you think it it as efficient as usual meetings?
- It is hard to tell right now, we can see it at the end, probably. But my personal feeling is that is can't be the same efficient. It is too new and too sudden, because people did not choose online program. but they are forced to take it. We will see how it works out in the end.

6. Did you implement any foreign experience in organizing the program?

Yes, we looked around, we visited also some Universities in Oxford and Dublin and also in Spain. Different programs that were meant for student entrepreneurship development were checked. There is not exactly the same program as StarterTallinn: **we gathered the pieces from here and there - and we put together the ones we thought would be applicable here.**

7. What about the speakers and mentors on the program? How do you choose them?

The particular requirement for the speaker is **English skills**, also the **practical experience of the field**, so she/he is working or has worked in the area where they are teaching, and that is probably everything. We always have to **get three proposals, and we choose the cheapest one**, but we send the invitations to come to the selected people who we know or we are recommended, that these people are good at it.

8. How many of the program participants do one of two things: they start their business straightforward after the program, or they go to the next step of the startup ecosystem?

After the program I would say it is **two or three teams will start a company, right after the program or even at the end of the program**. But we do not have the data what they do year after, for example. These things we do not know. As many of them are students, probably they first continue their studying, and start their companies after. And this kind of information we don't have.

-Would you like to have it?

-Yeah, it would be good to have it, but we don't have resources to track them in that way.

9. What marketing resources do you use to promote the information about the program among students?

We use **students lists**, that every university has, so we also **print the posters**, like the old-school stuff, which are on the walls of the universities, and we also **talk to the entrepreneurship lecturers** to combine their lecture pot to the practical workshops on the StarterTallinn program. Of course, **Facebook** also.

Appendix 5: Interview with Byron Sowerby

Byron Sowerby is CEO at «Recovery Companion», participant os the STARTER program in Tallinn in spring, 2019.

The interview was done on 13th of April 2020 at 13:00 by Skype. The interview was done in English and transcripted. The interview was 25 minutes. In this case I got a permission for recording from the very beginning, so the warm-up section is transcript as well.

(The author is identified as «K» and respondent is identified as «B»).

K: Hello!

B: Hi, hello, good afternoon!

K: Good afternoon, how are you today?

B: I'm good, just another casual day in isolation.

K: Oh, exactly, this quarantine is killing me. It's good for writing the thesis though - I have a lot of time. Ok, where are you now, you are in Tallinn right now or somewhere else..?

B: Yeah, I am in Tallinn

K: Ok, good. So let me give you brief description of my thesis, so you could understand what I am focused on. And then I will ask you several questions - I hope it will not take a lot of time. Ok? So my thesis is devoted to the exploration of the pre-incubator programs and they impact on the startup ecosystem of Estonia. I know that you participated in the STARTERtallinn program last semester…

B: Yeah

K: Yeah, so I was there too and I remember your team, guys. That's why I was very happy when you answered. For me, It is very interesting about the failures - and you are not obviously the failures, but I will have interviews with guys who did not start the business and they did not go anywhere further. And of course, the success stories are very interesting for me. And **your story from my perspective, is a success story right now**. That's why I am very happy that you have actually answered.

B: Oh, that is a success story in terms of, this kind of things is the thing that knocks stat-ups down, this kind of economics down. But we will see, still tagging along, so go ahead!

K: Could you briefly describe your business idea, I mean the Recovery Companion.

B: Basically, we are providing, we are trying to provide psycho social support for each other. Because when people are diagnosed with particular cancers, the diagnose is like being out of connect with someone, generally share a diagnose or … the isolation that happens as a result of a diagnose can undermines treatment outcomes in terms of people's anxiety, depression and social isolation that comes with it. Being social creatures… And so we are basically just providing a quick and easy way to connect with anybody else with the same thing to basically feel that and have fun. And making people in similar situations, similar diseases.

K: Uhh, and when and how this business idea appeared? Maybe you remember the moment, the stages?

B: Well, the initial idea of connecting people or the version that is kind of existing now. Do you want like original? From the beginning?

K: If you could show the way how it was developing by quick stages - that would be perfect. What did you start from and what did you come to? If it is possible to make it quick.

B: Sure. Ok, so, when I had my appendix removed, in 2016 I think it was, four years ago, I spend some extra time in hospital; I've been travelling around Southern Asia for a month for a month and I got something, yes, that is why it happened. But I ended up back in my home country for it. And I was in hospital for seven days cause it was kinda worse. I just so like wow <> the people that are feeding back a lot of people with opioids, base drug and I knew there was an epidemic. And I had a friend who had actually passed away after getting addicted after he broke his arm. So how could you intervene with this situation where people are isolated in the hospital order and the recovery and they are being set this addictive substance. So how could intervene, forming an emotional dependence on it because all the nasty ones happening to them at the time of recovery. So the idea was: ok, create social network and educate people and if you can find other people who are kinda like you, who are going through similar injury, surgery, sickness. You could find support, you would feel less isolated, and if you are educated on danger of these highly addictive drugs they are giving you whilst you are in recovery, then you could intervene. So the idea, the name Recovery Companion came out of that, sitting in hospital doing nothing, thinking: "what can we do"? So that kinda came out. And then when I was looking in what I

want to study around Europe and my girlfriend is Estonian we had already been together at that time. And we looked at some different things that were available, there was the TalTech, and that came up enough and they wanted me to put in like a **thesis idea**, so I put in this opioid intervention idea, like help… This is the Recovery Companion's application. And that still comes as the vision we are working with; this app you download when you are in recovery from surgery, injury, sickness or you have a disease that isolates you, so basically the social network around this concept. And then when we went to a Hackathon, It was called LAPhack. And that was about half a week to the start in Tallinn, and my girlfriend was like: "Let's go and check out the hackathon. Maybe you are going to join someone else's team". She encouraged me to get up in the last minute and drop some of the ideas. And we formed the team, basically when we had done that, we formed the team very casually and did the Hackathon. We didn't think we'd gonna win cause there was a lot of snazzy stuff there. But during that time things started to focus and the best place to enter the market is through cancer. I had experienced cancer - my dad is a survivor. So and I was confident in expanding it. And then we won that and basically we were doing something very different in STARTERtallinn at that point and we just pivoted in the last month and a half or month or something like that, before the finals…

[the connection is lost]

K: Sorry, I lost you.

B: Sorry about that.

K: Something went wrong, now I am listening.

B: Yeah, cool. So basically that is what happened. **We pivoted from the original idea**. And basically wanna applied over here…the idea…so, to get that, to put it as an idea for thesis, so it is convincing to get that free tuition over here. **So that is where it started - hospital, looking for the university here, and then LAPhack, and then STARTERtallinn.**

K: So when it came to the STARTERtallinn - because it is very interesting for me, your experience there. What did you expect? Did you have any particular expectation? We are gonna get funding, help, mentoring. What was your expectation from the program?

B: **It was initially just to learn and take things as they come.** My approach has always been that **I am pretty grateful for the opportunities.** I have never had this expectation of going down this path and push it and push it and push… cause **I am still trying to learn about how**

everything works. The STARTERtallinn is really good because it explains every step, basically the spectrum of what you need to fulfill in order to be able to get your business started. That gets you to know about all the different things that you should consider and then you can come back later when it comes along. But at least **you have this really good overview of things gotta be, and if nothings stops you there, there is nothing you are unconfident about there… this is a really great program.**

K: What was the most useful part? Maybe you remember like you heard something and thought: "OMG, I am gonna use it, for sure! I didn't know this before" or something like this.

B: Eh, hard to recall when it comes to like… I think all along there we just as they popped up we took out… **what they were encouraging to do and just kept on doing feedback that way.**

K: So, feedback and motivational part, right? Ok, how did you know about STARTERtallinn program? Your girlfriend told you too? Or you found it out in the university?

B: No, it was up **on the wall in the Mektory**. We had a choice, you know, my technology course, you have a choice - to do the internship or to do an entrepreneurship project. And entrepreneurship project was STARTERtallinn. So, yeah, and I was like: "**Wow, I am much more inclined to do the entrepreneurial stuff".** So I chose that way, so that is why I ended up in STARTERtallinn. It actually, I was always very intrigued and, well, passed it couple of times realizing that it was too late to sign up for it in the first semester, and then in the second semester I ended up in there. So I think it was kinda subconscious. **There is no actual conscious decision to go on.** A lot of what I am doing at the moment… there are not actually a lot of conscious decisions, it is more like stepping in the direction of opportunity, I guess.

K: Ok, so did STARTERtallinn influence your idea or your team or change anything in the way you were treating your idea in the Recovery Companion. Maybe I missed something, I am sorry if I did so.

B: No, **it helped us to understand the broader context of starting a business and understanding the state quarters.** Yeah, it basically just **gave a spectrum of understanding that I did not have before. It gave the confidence to narrow approach. Something I had never properly known how to do.**

K: And what happened after? You won a grand prix, right? So you were the winners, what happened after? Because if it does not go further like our team or some other team, you have no idea

what is going after. How did you get to the next level of the startup incubation? How did it work?

B: One of the reasons we actually started the company is because we were to buy the IT digital <> in order to get… They give you $50 000 and then they say something like "build a little MVP" and on assessment of what you have built we will give you extra $10 000 but only if you incorporate <fourth hand>. So then they take 5% of the company for the 15… So they can come in claim whenever they want, they have not but I think… So **I don't think we would have actually started as a company if were not taken initiative at that point;** we would have spent some more time working on idea and what not. B**eing guided, it was the situation of being guided into that.** And thankfully it was really easy to do in Estonia as well, it took as 20-45 minutes or something to get things together.

K: Yea, exactly. Ok what is with your business right now if it is Ok to ask? You said you are focused on the product development right now, so when are you gonna launch? Or maybe it is launched already? Better version? Could you describe it a bit?

B: Well, what we eventually did for MVP was this web-platform where people could basically sign up and let us know about their diagnoses, the treatment, the stage of cancer and what not; and then we try to manually match people up. So that is what we created back in September in order to be able to receive the next round of funds. Yeah, that is when everything else kinda picked up when we got back into the competition situation and we realized it was really annoying actually. I wish we had not signed up for a year. Sorry…

K: No, no, so you've actually explained. I wanted to know what are you doing with the business right now.

B: Ok, so basically this is building trust. That is the biggest and hardest area, especially in that situation giving that this is a very sensitive subject and… Most of the representatives, my girlfriend is the only Estonian in the team and usually the one doing presentations and what not. And you have to do it in English. But yeah, it is just getting known, we get a little bit of press coverage in that area right now; building trust with hospitals where we are working with <the name of the hospital> but they have just, we only got a good connection with them about three weeks before coronavirus situation and then they got pretty overflowed with people. So putting testing capacities through them is on hold and one guy left from there. The guy who left he speaks English and what not, he has ended up getting overwhelmed by this situation because we all asked

him… All the people who are going through cancer are asking him questions that is what happened, see. He is basically intermediate oncologist and people are asking him, when he is just old retired guy. So yeah, we want to do the testing through this population but that is being put on hold until they said: "You can come in July… And you can do your testing in July". So we are hoping that will stop. And we also got some other things when we were in Poland, made friends and got opportunity to get to do testing there where some people from the university would help to translate Arab and what not. We are just learning a lot about developing and the whole idea, there is so much information in terms of learning how to design an app and… You have to learn all this staff. We don't have an app-developer in the team, we are trying themselves to develop that. But we've got the money to pay the developer but he got very distracted with building some solution for the coronavirus situation, so.

K: Corona is changing everything… Ok, and probably two last questions, ok? Could you make a general revision of **what kind of input or support you have received for your business in general in Estonia? Maybe name some fundings and programs that helped you.** Whatever you want to name.

B: Well, the **STARTERtallinn was definitely the beginning one that made us reallize that starting a business is not that scary as you imagine it would be**. And then of course, P**rototron. They gave us $10 000 to work on what we are doing**. Prototron and STARTERtallinn and **Alujaht was pretty interesting, the system of admission: ten full days going around to get interviewed for five minutes…** But, yeah, **I would take Prototron and STARTERtallinn that encouraged us here.** We've got a lot of encouragement from older people. Hospitals are being very receptive in to building solution, so there, they said like: "We are interested but we want your product built fast". We did some research and we got some participants to survey to check the receptiveness of the idea of the product.

K: I see. And the last one, ok? So, you've mentioned only good things about STARTERtallinn that there was a lot of learning, it was encouraging and motivational an so on. But if you were to change something, omit something or add some extra things in the program on any level, anything, any ideas, what would it be?

B: Um… It feels like so long ago now.

K: Maybe, I don't know, add an extra section on crowdfunding, or choose mentors with better English level, or less teams, or bigger prices, it could be anything. I know that has been a year, that is the problem with my thesis: I have only talked to people who actually did the program.

B: Yeah, **I think crow-funding campaign would be a great idea.** Something that Prototron has too and I think that was really good learning experience and it is very good way to get your idea guidance. I **definitely recommend crowdfunding, having that as an aspect of it. I think discussing how fluid you need to be as…. bringing the forefront how important fluidity is in terms of being able to assess something, stand back from it, walk in it from different thinking. Maybe some lectures on it, books…**

K: That is a good one, I agree. Well, I think I'm done with the questions. I'm really grateful for your time, maybe you have some question for me? Maybe about my thesis or..?

B: Yeah, how is it going?

K: I have to upload a pre-defence version on 20th of April, I have had several interviews already. So, it is going Ok, thanks for asking, I think I am gonna be fine. Ok. then, thanks for your time again.

B: Thanks, Kate!

K: Goodbye, have a good day and good luck with the business. Chao, see you!

Appendix 6: Interview with Alvar Lumberg

Warm up section.

1. I read on your Facebook page, that you name yourself as a «Startup Advisor». Could you please tell me a bit more about it - what does it mean exactly?

In that regard, that is more about hobby, that is not my main activity, that mostly serves the purpose of putting of what I have learned or done to a good use for other teams and products. But at the same time that gives me the exposure to interesting project and interesting people. I definitely feel that I am getting at least as much pleasure, I would not do it if I did not feel that way. So it is more about hobby, it is a little bit of not really marginal, but source of income as well. I do a lot of stuff pro bono.

2. Are you mentoring in any incubator / accelerator programs as well?

No, not at at the moment, and I never have, like, formally.

3. Do you think that more people should become entrepreneurs?

It is actually a tough one to answer. I do not know if I have a direct clean answer for you for this one, but I do believe is that **more people should have an entrepreneurial mindset.** And what I mean by that is **I do not necessarily think that everybody should become a founder, or a CEO of a company, or anything like that. However, I do think we can be a lot better and higher value employees, if you understand how this models and companies works and how products are being built, etc. That is what I definitely think more people should have, I actually think Estonia is a pretty good spot with all the Hackathons, startup ecosystem, we were getting their with education as well.**

4. How important are incubators and accelerators for startups? Do they really do something that potential founders need?

I think that, first of all, let's look at what incubator or accelerator would actually give a company, and I am not even throwing any distinction between the two of them -there are so many different formats, but I think for the most part the benefits are similar. **The value would be access to good mentors, access to experience and knowledge, and then also - especially in the case of accelerators - it is almost like forcing functions for focus.** Getting there, into the program, **you literally can not afford to do anything else time-wise.** No matter if you succeed or fail in the end, but that will help you to learn about that faster. **It can help you also understand, if the thing you are working on is not meant to stay alive.**

5. How should we measure the success of the incubator? If we want to measure it, than we need to figure out the metrics, that we can can actually meaningfully track: the number of companies founded is a really easy number to look at. I do not think it is necessarily the goal itself, it is sort of a **«proxy metric», as product people sometimes say. It is a useful number to look at, because we do not have a better one**, and hopefully it reflects how many people gain enough confidence in their idea, in their skills through that programs. Starting a company is a reasonable logic that comes out of it.

6. Have you ever participated by yourself in any kind of incubator or accelerator?

I have not actually. I have been occasionally mentoring here and there. There was a «StartupWiseGuys», but this was the one where I was a formal mentor for a team. I have seen quite a few of them form a side when we did some programs 7-9 years ago. That was one point when I realized empirically, that **you can not educate somebody to become an entrepreneur. I mean you can, but that does not necessarily means that they would, so that is not the goal to have.** So, however we felt, that **we trained a lot of pretty good product owners, with balanced understanding of customer-centric design, building a business and also technical side, that is why that is relevant.** That was kind of incubator, because everybody was meant to work on actual business project.

When we talk about the lean startup mindset, MVP, innovative product development principles, when we look at budding startup - 2-3 people, first days of just getting it off the ground, than all these principles are relevant. But **they are just as relevant, when you start whatever, also in a large corporation.** It is still about **making minimal investments to get confidence in an environment of uncertainty.** That is when these methods come into place, that is why that is also relevant for somebody working in large bank or multinational corporation.

7. What should Estonian do in order to improve its startup ecosystem?

That is coming off the research project, that TransferWise has set up with a University of Tartu about a year ago. We wanted to understand what is the relationships of primary and secondary school kids with STEM subjects, do they see information technology in their future, for example as a potential career choice, etc. We learned many things, starting from when girls usually drop off, what the teachers need to gain more confidence in teaching. However, like a mental evolution we went through as a company, we started from «we need more developers in our ecosystem, let's get more of them», and that is still a valid question. But I think, more important poten-

tially would be not to train as many programmers as we can (although there is nothing wrong in investing into that), but the actual overall impact would be even bigger, if we generally improved digital technological literacy in the society. By that I mean not just how to use Google Drive or Dropbox or web-browsers, but what I actually mean is **understanding technology or it is principles, enough for understanding better cybersecurity privacy, also more importantly finding out how technology could help you in you daily life, no matter if you are a teacher, or a doctor, or a farmer.** But general understanding of what technologies can do for you could be a massive benefit. Just to stop people talking «AI is going to come and get my job from me» and start thinking, that it could meaningfully help them in their business.

Appendix 7: Interview with Anatoliy Prikladovsky

Anatoliy Prikladovsky is a business and logistics analyst in Storenzo, MBA student in TalTech, the participant of the STARTER program in Tallinn in spring, 2019.
The interview was done on 5th of April 2020 at 13:00 by Zoom. The interview was done in English and transcripted. The interview was 13 minutes.

Warm up section.

1. Why did you come to the StarterTallin program?

Our team had a business idea which we wanted to work with. We were thinking, that Starter program will help us to understand situation with the incubators - where we can go after, etc. We needed investments and thought that we could get them there.

2. What were your expectations from the program?

Pretty simple. **We wanted work on our business idea and start a business out of it. We believed it could work if we get money.**

3. How did you know about the program? From the Internet, I saw an invitation from my friend on **Facebook.**
4. Did you have a team before or after the program? Yes, we had a team of 3 students, all from the same program.
5. Did you have a business idea before or after the program? Yes, we had. However, it was couple of times **changed during the program, after we got feedback from the mentors on the speed dating night.**
6. What was the most useful part of StarterTallin for you? **Lectures about business, pitching, meetings with mentors - everything was rather useful.**
7. What would you change about the program? I **would group business ideas by areas, for instance mobile application would pitch at the same time, produciton start-up in another time slot.**

-Why would you do that?

-Because, I think, that our mentors told us, that every idea could turn in a great business or startup. And **many people did not have ideas in technologies: some wanted to start a restaurant, others wanted to manufacture things,** you know. And in the end **all of the winners were people with application ideas or web-sited, or platforms.** I think they should inform everyone

in the beginning - that we are interested in technological companies, not just random cafes or cosmetic shops.

- Well, yeah, that sounds right to me!

8. Do you think that programs like this can really increase the amount of stratups?

Yes and no. Yes, they can , because some people still win and find investors and do business, of course. But **I don't believe, that real specialists from different fields are coming to such events - not sure that real high-class businessmen would spend their time and come to teach us.**

9. Do you think the programs like this are really needed? Why?

Of course it is needed. **I would made it for less people and with higher focus on result. We had some people who were not motivated about the program, came just to be there. Some kind of filtering should be done from the beginning.**

Appendix 8. The summary of STARTER program participants' feedback

The summary of STARTER program participants' feedback in spring of 2019, including surveys questions, answers, some general statistics and graphs, presents a documents of 45 pages. Document can be downloaded in pdf-format by the following link:
Link: https://drive.google.com/open?id=1DXiKo0J4h2aQjxdsvAVew2sm7kTanE1K

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