

Local diagnosis – Tartu, the city of smart entrepreneurship

Context, methodological approach and suggested structure

METHODOLOGICAL APPROACH

The aim of every local diagnosis at *Innova Foster* is to identify strengths and weaknesses at national, regional or local level. This work has been done in cooperation with the participation of the selected stakeholders.

The local diagnosis has been done based on desktop research and discussions with the regional stakeholders.

1. Startup ecosystem

Density and Culture

Estonia has made a name for itself for the innovative application of communications technology, where state-of-the-art technologies are a way of life. Tartu has always been a trendsetter when it comes to ICT developments – talented minds and ambitious entrepreneurs have led to a rapidly growing ICT ecosystem which has attracted the attention of venture capitalists as well as foreign ICT companies. For example, in 2016, the city hosted more than 60 startup events (from hackathons^{1,2,3} to Mobile Monday⁴ to sTARTUp Day⁵ etc), with more than 5000 people from the tech industry getting involved.

The startup community's prosperity can be largely attributed to the beneficial relationships that have developed among key players in Tartu. This has produced a nurturing and supportive ecosystem. And in working to make Tartu a truly attractive city for startup founders (from Tartu and beyond), strong and active cooperation has started to unfold among these key players (i.e sTARTUp Day). This entails developing partnerships among startup founders, the city government, Tartu University and others, that create win-win situations for all parties involved, while keeping an eye on the primary goal of continuing to improve the local startup ecosystem.

Even in the digital age, a startup ecosystem needs physical space to thrive. Just recently built, the office spaces SPARK and sTARTUp Hub have become a new home for the tech community in Tartu. Those buildings also include the hardware accelerator Buildit and two initiatives as a result of collaborations with both public and private organizations – Makerlab and a showroom for Estonian businesses called SparkDemo.

SPARK, a business and community centre for tech & hardware companies, which forms a whole entrepreneurial ecosystem of its own that is open for both house members and visitors beyond our doors. Here is the central point where entrepreneurial teaching for children meets educating adults, traditional enterprises

¹ <http://garage48.org/events/hardwarearts2017>

² <http://garage48.org/events/spacetech>

³ <http://garage48.org/events/openbigdata>

⁴ <http://www.momoestonia.com/>

⁵ <https://www.startupday.ee/>

get acquainted with startup companies, established companies welcome beginning founders and hardware combines with information technology. The key players in this ecosystem are SPARK Demo – a display area for the businesses in the South-Estonian region to share their singularity and a contact point between the region’s most successful exporters and stakeholders, SPARK MakerLab – a place to make things with your hands and mind. Here you will be provided the workspace as well as the tools, materials and programs you need to bring your ideas to life, Entrepreneurship Village teaching children entrepreneurship and SPARK BizTown event and meeting rooms’ complex.

In addition to the business festival sTARTUp Day, many other relevant events in Tartu are consistently held. For example, there is a monthly networking event called [OpenCoffee Club Tartu](#) that takes place in SPARK every two months and in sTARTUp Hub every other two months. There are also hackathons, pitching and ideation events, such as [Idea Storm](#) (organized by the University of Tartu). There is also [VUNK Idea Garage](#) (organized by [VUNK accelerator](#)) which serves as a pre-event for their accelerator program. Coworking spaces are pivotal elements of the local startup ecosystem. This is where founders work to make the magic happen in addition to being a nice place for people to meet. For example, [sTARTUp HUB](#) hosts some of Idea Lab’s pre-incubation program events and serves as a workplace for members of different startup teams.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|----------------|---|-------------|------------|------------------|--------------|
| Density | | | | | |
| | A recognizable cluster of startups exist | X | | | |
| | Startup movement is in the media | X | | | |
| | Meetups and events for entrepreneurs happens every week | X | | | |
| | Academic & research networks are well connected to business | | X | | |
| Culture | | | | | |
| | Entrepreneurs are high-lighted as role models | | X | | |
| | Failure is accepted as a part of the learning process | | X | | |
| | Jobs at startups are promoted | | X | | |

Funding

Equity financing is an alternative to debt financing and is basically an acquisition of funds by selling common or preferred stock to individual or institutional investors. In return for the money paid, shareholders receive ownership interests in the corporation.

A company can finance equity through:

- Private equity companies financed by institutional investors (such as investment banks, funds etc) and private investors. There is a wide array of private equity types and styles and the term ‘private equity’ has varying connotations in different countries. Among them are:
 - Venture Capital (also known as VC or Venture) is a type of private equity capital typically provided to early-stage, high-potential growth companies. Generally, VC fund investors accept a higher risk of failure than is normally the case for other more conservative investments. The most known VCs in Estonia are: **Karma Ventures**⁶, **Mobi Solutions**⁷, **Astrec Invest**⁸, **Tera Ventures**⁹, **Spring Capital**¹⁰. Also

⁶ <http://www.karma.vc/>

⁷ <http://mobisolutions.com/>

⁸ <http://www.astrecinvest.com/>

there is **EstVCA**¹¹, which is the representative body of Private Equity & Venture Capital Industry in Estonia. Their goal is to develop a sustainable and attractive ecosystem for the benefit of innovative, ambitious and high-growth potential enterprises, as well as fund managers and institutional investors. Today EstVCA represents 16 member firms and 22 associate members.

- Initial Public Offering (IPO) also referred to as a "public offering" or "flotation," is when a company issues common stock or shares to the public for the first time. The money paid for the new shares to the company will be used for new investments, lessening the loan burden etc. The initial public offering is usually followed by listing the company's shares on the stock exchange: <http://www.nasdaqomxbaltic.com>
- First North Baltic is an alternative marketplace for small growth companies, providing a wealth of opportunities on the Baltic financial markets. First North is a part of NASDAQ OMX Nordic Exchange.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|--------------------------|-----------------|-------------|------------|------------------|--------------|
| Funding (private) | | | | | |
| | Seed capital | X | | | |
| | Crowdfunding | | | X | |
| | Venture capital | | X | | |
| | Prizes | | X | | |

Regulatory environment

There are many reasons worth bringing out Estonia as a country with a good regulatory environment for startups:

- Paperless society has its perks – you can conduct almost everything online. You can even become an e-resident of the country.
- Estonia's economic freedom is regarded as one of the highest in the world and the best in the Central Eastern European region.
- Estonia has one of the most liberal tax systems in the world – only corporate income tax is paid on dividends.
- The healthy startup community in Estonia is connecting various science parks, business hubs, innovation centres and networks of investors. Regular get-togethers in the form of conferences, seminars, coffee mornings, office parties and other exciting events take place among the community.
- Estonia is a home to several accelerator programmes for startups. These include Startup Wise Guys, Buildit and others.
- The Estonian government provides support to the would-be startup entrepreneurs. They can get help (information, financing, and other types of support) from support organisations such as Kredex and Enterprise Estonia.

The state implements its interests through three major instruments:

1. Development of co-operation networks (including international cooperation networks). In order to address challenges important to the state, increase synergy with international initiatives (Horizon 2020) and to create preconditions for their adoption and implementation at the national level, cooperation structures funded by

⁹ <https://www.linkedin.com/company/tera-ventures>

¹⁰ <https://springcapital.ee/>

¹¹ <http://www.estvca.ee>

the state (e.g. clusters and competence centres) are charged with the task to contribute inter alia to the following:

- raise technological awareness and increase R&D implementation capacity of enterprises;
- include R&D intensive and innovative foreign investments;
- enhance co-operation between enterprises and international R&D&I clusters and technology platforms.

Co-operation structures co-financed by the state (e.g. competence centres and clusters) shall be based on a shared vision of entrepreneurs regarding the the planning and implementation of development and marketing activities (including international marketing) and, therefore, topics are formulated in co-operation with partners from business and academic sectors.

2. Development of demand-side policies. In order to create a market for innovative products and services, we shall increase the state's capacity and readiness to act as a client for innovative solutions (e.g. through innovative public procurements). We shall ensure the state to be an active innovation partner for entrepreneurs as a client for innovative solutions, while fostering the development and procurement of innovative solutions and implementation of demonstration projects. By doing so we stimulate innovation activities, enhancing thus both the emergence of start-up companies as well as partnerships with foreign enterprises.

3. Fostering start-up entrepreneurship. Although the active entrepreneurial policy of the last decade has largely been focused on modernizing traditional areas of the Estonian economy, the development of existing enterprises pays off only to a certain point. It is important to make use of the existing competencies and move on to more remunerative sectors 14 by fostering emerging companies. To that end, we promote structural changes in enterprise, supporting the establishment and growth of new innovative companies in priority growth areas.

We shall give new impetus to the 'Start-up Estonia' programme by focusing on three courses of action:

- we support the distribution of learning modules concerning start-up entrepreneurship, the establishment of interdisciplinary teams and spin-offs;
- we contribute to the fast completion of prototypes and to the quick introduction of a minimum product to the market. We make support services necessary for the completion of test products and make financing widely available, in addition to expediting the development of a domestic investment market;
- we support the inclusion and development of management competencies in start-ups and support systems. We also help to recruit managers with international experience, improve leadership skills of ambitious entrepreneurs and raise the quality of coaching.

In addition to the instruments of this strategy, Estonia contributes to the development of growth areas using primarily the research and development policy instruments of the Ministry of Education and Research (national R&D programmes in the area of smart specialisation, specialty scholarships, an institutional development programme supporting smart specialisation for R&D institutions and institutions of higher education) but also involving other partners from public, private and non-profit sectors. Priority development of national growth areas are also supported by activities specified in the regional development strategy by determining regional growth areas with major growth potential and by priority development of these areas.

The Estonian startup visa is meant for entrepreneurial non-EU nationals, who wish to come and be a part of one of the smallest but liveliest startup communities in Europe as a founder; or an Estonian startup wanting to recruit abroad. For Estonian startups, enriching and growing their company by employing foreign talent is made easier than ever.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|-------------------------------|--|-------------|------------|------------------|--------------|
| Regulatory environment | | | | | |
| | Tax regulation fosters entrepreneurship | | X | | |
| | Patent protection system supports innovation | | X | | |
| | R&D transference to market is encouraged | X | | | |
| | Special visas for startups | X | | | |

Support services and business training

The startup scene in Tartu is characterized many startups, who have partially grown out of the large ICT companies and who supplement each other and form a well-working cluster. The ecosystem is not only being supported by the companies, but also by several technological institutions like the Software Technology and Applications Competence Centre¹², the Buildit Accelerator¹³, sSTARTUp HUB¹⁴, Tartu Science Park¹⁵ and the Smart City Lab cluster¹⁶. The aforementioned institutions also form the business support ecosystem of Tartu. This community offers wide-range of different support, from incubation (Biotech¹⁷, Creative Industries¹⁸, Space) to Töötukassa (Estonian Unemployment Insurance Fund)¹⁹, Chamber of Commerce²⁰ to infrastructure (Biopark²¹, sSTARTUp HUB²², Tartu Science Park²³) and to Tartu Business Advisory Services²⁴.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|---|---|-------------|------------|------------------|--------------|
| Support services and business training | | | | | |
| | Incubators | X | | | |
| | Accelerators | X | | | |
| | Next-generation incubators and accelerators (coworking) | X | | | |

2. Institutional support

Talent

Estonia has one of the best performing labour markets in the EU, but its declining working- age population is a challenge. The Estonian labor market is characterised by its flexibility, high participation and employment rates, and low unemployment. At the same time, ageing combined with prolonged low fertility rates are set to shrink the working-age population over the next decade. This will contribute to the ongoing tightening of the labour market, creating a continued upward pressure on wage growth. This poses a risk for businesses' profitability, competitiveness and overall long-term economic growth. However, ongoing labour market reforms are expected to boost labour supply and prevent excessive wage growth. The entry into force of the Work Ability reform is bringing work-incapacity pensioners back to the labour market. This increased labour supply is expected to slow the wage growth. Labour supply will benefit from further ongoing reforms creating further

¹² www.stacc.ee

¹³ www.buildit.ee

¹⁴ <https://www.contriber.com/startup-hub/>

¹⁵ www.teaduspark.ee

¹⁶ <http://smartcitylab.eu/>

¹⁷ <http://biopark.ee/biomed-incubator?lang=en>

¹⁸ <http://loovtartu.ee/en/>

¹⁹ <https://www.tootukassa.ee/eng>

²⁰ <http://www.koda.ee/en>

²¹ <http://biopark.ee/?lang=en>

²² <https://www.contriber.com/startup-hub/>

²³ www.teaduspark.ee

²⁴ <http://www.tartu.ee/arinouandla/>

incentives to work, reducing the gender pay gap and providing more accessible childcare. Also, the ongoing local government reform is projected to make labour market activation policies more effective, as local social services are made more efficient. Finally, labour and skills shortages are expected to decrease, as measures are being taken to address them. Notably, constraints on economic immigration have recently been relaxed. Estonia is generally performing well on education and training. Estonia has high rates of tertiary education attainment and performs well in international skills surveys. Also, participation in lifelong learning is above the EU average. However, early school leaving remains above the Europe 2020 target.

A public system for monitoring and forecasting labour market needs and skills (OSKA) is being developed to improve the labour market relevance of education. Overall, employability of recent tertiary education graduated (86.1% in 2015) and upper secondary vocational educational training graduates (83.5%) is above the 2015 EU averages of 81.9% and 73% respectively. Nonetheless, OSKA identified shortages in certain fields and pointed to the need to update skills to meet the changing labour market demands. This is the first time different Estonian economic sectors are being systematically analysed using the same methodology. The aim is to stimulate discussion on how the sectors and skills needed in these sectors are expected to change in the next 10 years.

To mitigate skills shortages, the government is taking measures to strengthen the higher education funding model. The level of tertiary attainment (ages 30-34) exceeds the EU average (45.3% in 2015 compared to 38.7%), but the gender gap remains significant, with 56.7% of women obtaining tertiary education compared to 34.5% for men. However, the high drop-out rate from Bachelor's programmes is a challenge. The government revised the tertiary education funding model to improve stability of funding and improve performance-based indicators.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|---------------|---|-------------|------------|------------------|--------------|
| Talent | | | | | |
| | Flexible labor market | | X | | |
| | Education system focused on competences, not in knowledge | | X | | |
| | Companies supporting long-life-learning | | X | | |
| | Coding included in the education system | | X | | |
| | Promotion of STEM education | X | | | |
| | Gender gap tackled, specially in STEM education | | X | | |

Financing

KredEx (a financing institution helping Estonian enterprises develop quicker and expand more safely to foreign markets, offering loans, venture capital, credit insurance and guarantees with state guarantee), is providing venture capital through funds of funds to help Estonian start-up companies and well-established and fast-growing companies expand and finance their growth.

In order to help Estonian start-up companies and well-established and fast-growing companies expand and finance their growth here, KredEx provides venture capital through funds of funds. The activity is aimed at providing sufficient local capital and the comprehensive development of the venture and private equity market. This requires contributing to the development of fund managers and raising interest among investors towards investing in local funds. Only fund managers with a proven track record are capable of involving a sufficient amount of capital from private investors. For investors, in turn, it is important to have constant investment opportunities of a suitable risk level and size.

Within the framework of defined investment strategies, the provider of public capital will choose the fund managers, who, in addition to public funding, involve on the same grounds their own money and that of private investors, and who are responsible for the investment decisions and results of their established funds. KredEx does not interfere directly with the activity and decisions of fund managers.

KredEx does not make direct venture capital investments into companies; therefore, any companies interested in including investments should contact the fund managers directly. KredEx cooperates closely with market participants and international institutions, including the Estonian Private Equity and Venture Capital Association (EstVCA), Estonian Business Angels Network (EstBAN) and their members, the European Investment Fund (EIF) and the European Venture Fund Investors Network (EVFIN).

As for prizes, Ajujaht is the largest competition of business ideas in Estonia that was initiated by Enterprise Estonia in 2007. It is an opportunity for people to challenge themselves in trying to start a business in a highly supportive environment. The prize fund of the competition is 60 000 €. The success stories of Ajujaht include: Click & Grow, Minukleeps, Bikeep, Timbeter, GoWorkaBit, Taxify, Huntloc and SprayPrinter.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|------------------|--|-------------|------------|------------------|--------------|
| Financing | | | | | |
| | Seed capital (public support or investment) | | X | | |
| | Crowdfunding (public support or investment) | | | | X |
| | Venture capital (public support or investment) | | X | | |
| | Prizes (public support or investment) | X | | | |
| | Incentives for new and experienced investors | | X | | |

Support services and business training

In 2016, the city of Tartu hosted more than 60 startup events (from hackathons^{25,26,27} to Mobile Monday²⁸ to STARTUp Day²⁹ etc), with more than 5000 people from the tech industry getting involved. In addition to the Tartu City Government, who organized nearly 150 seminars, trainings and workshops on entrepreneurship, several members of the business development ecosystem like Spark Demo, Buildit Accelerator, sTARTUp HUB, Tartu Science Park, Tartu Biotechnology Park, Centre for Creative Industries etc have organised tens of events each month.

IdeaLab of the University of Tartu provides STARTER pre-incubation program for all the students. Our extra-curricular entrepreneurial program enables students to develop ideas to validated business models. Our workshops are integrated with hands-on exercises and team mentoring sessions. Mentors are start-up founders or entrepreneurs from different business sectors. It is a place where students from all disciplines can find innovative solutions to everyday problems and test viability of their ideas.

The VEGA fund is a funding facility for science based business ideas. The best teams get 5000€ prize money for kicking off their idea. They support:

- Students and scientists from all fields of studies.
- Projects that have scalable business potential.
- Constructing knowledge-intensive services and working prototypes.

²⁵ <http://garage48.org/events/hardwarearts2017>

²⁶ <http://garage48.org/events/spacetech>

²⁷ <http://garage48.org/events/openbigdata>

²⁸ <http://www.momoestonia.com/>

²⁹ <https://www.startupday.ee/>

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|--|--|-------------|------------|------------------|--------------|
| Support services and business training | | | | | |
| | Support for developing commercial loans for startups | | X | | |
| | Technology transfer and university spin-offs | X | | | |
| | Business and financial training | X | | | |
| Integrated public/private programmes (financing and services) | | X | | | |

Integrated public/private programmes (financing and services)

Startup culture has become increasingly popular and has reflected on the Estonian business landscape as well. New role models are emerging, changing values within the companies. Great ideas tend to arise from different parts of the world simultaneously, therefore, the key to success often lies in speed or capability to realize your ideas as soon as possible.

The Start-up Estonia programme is a collection of services aimed at developing and helping a startup go from a mere idea to wide-spread growth as quickly as possible. The activities of the programme are implemented by Startup Estonia team at Fund KredEx.

The activities of the programme are divided as follows:

- Developing the Estonian startup ecosystem (e.g. community meetings, website etc.)
- Educated and talented people – enhancing the knowledge and skills of startup founders and employees that keeps them achieving their business goals and building global businesses.
- Smart capital – the programme aims to attract foreign investors to Estonia and works on educating local investors to help them invest more and smarter ways.
- Eliminating regulative issues and barriers and staying for the interest of various parties of local startup ecosystem.

The goal is to supercharge the Estonian startup ecosystem by developing and uniting startups and private and public initiatives. The result is 1,000 potential and operating startup entrepreneurs participated in the programme.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|--|------------|-------------|------------|------------------|--------------|
| Integrated public/private programmes (financing and services) | | X | | | |

Demand-oriented support& market creation: Public procurement and other

In 2010 the Estonian public sector expenditure on products, services and work accounted for 19.4% of the GDP (2.8 billion euros). However, today most of the companies do not consider public procurement as a measure to support innovation and public procurement procedures do not have much influence on innovation.

Yet, Estonia has set a goal to develop the demand-side policies. In order to create a market for innovative products and services, Estonia has set a goal to increase the state's capacity and readiness to act as a client for innovative solutions (e.g. through innovative public procurements). The aim is to ensure the state to be an active innovation partner for entrepreneurs as a client for innovative solutions, while fostering the development and procurement of innovative solutions and implementation of demonstration projects. By doing so we stimulate innovation activities, enhancing thus both the emergence of start-up companies as well as partnerships with foreign enterprises.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|---|------------|-------------|------------|------------------|--------------|
| Demand-oriented support& market creation: Public procurement and other | | | X | | |

3. Enhancing corporate innovation

Traditional models

The corporate venture capital is non-existent in Estonia. However, some of the success stories in the field ICT can be attributed to the corporations, who have had successful spin-offs like ZeroTurnaround³⁰, Plumbr³¹ and LeanEst³² from Nortal etc.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|---------------------------|-----------------------------------|-------------|------------|------------------|--------------|
| Traditional models | | | | | |
| | Corporate venture capital | | X | | |
| | Corporate incubation (inside-out) | | | | X |

New models

The new models are not existing in Estonia at the moment.

| Category | Instrument | Operational | Developing | Recently created | Non existing |
|-------------------|--|-------------|------------|------------------|--------------|
| New models | | | | | |
| | Outside-in startup programmes | | | | X |
| | Inside-out platform startup programmes | | | | X |

³⁰ <https://zeroturnaround.com/>

³¹ <https://plumbr.eu/>

³² <http://www.leanest.ee/>

SWOT

| Strengths | Weaknesses |
|--|---|
| <ul style="list-style-type: none"> - Strong ecosystem - Collaboration and openness | <ul style="list-style-type: none"> - Far from target markets - Weak local market - Lack of corporate models - Lack of new models like outside-in startup programs or inside-out platform startup programs - Lack of “sales experience” - Lack of domestic funding |
| Opportunities | Threats |
| <ul style="list-style-type: none"> - Education of new entrepreneurs - Foreign MNEs are looking for solutions | <ul style="list-style-type: none"> - Brain drain - Demographics - Education |

Strengths

- **Existing startup ecosystem** itself is a strength. There are many entrepreneurs and startup founders, so having a startup is considered common and acceptable in the society. The existing success cases also stimulate people to create new ventures and successful entrepreneurs serve as mentors for the new ones, keeping the wheels turning.
- Ecosystem has culture of **collaboration and openness**. People believe that technical knowledge and business experience must be shared, and if one helps the other, the whole system grows together more efficiently.

Weaknesses

- Estonia has the disadvantage to be so **far from the target markets**.
- **Weak local market**. This means that, in order to grow, startups must think globally from day one. Some considered this as strength, but sometimes, the testing of new ideas in the absence of a local market is more difficult.
- The absence of the local market also means that there are no MNEs or big enterprises, who would create corporate programs for startups.
- The local market lacks funding. This is due the size of the market – although there are seed capital programs, the funding will get scarce after the seed round has finished.

Opportunities

- Education of new entrepreneurs could help improve the outcomes of the startup ecosystem. Today, incubation and acceleration programs are doing a good job in educating entrepreneurs and this could have a positive impact in the future. And also the entrepreneurial programs at the university are creating a more entrepreneurial mindset among young people, thus resulting in more startups.
- Foreign MNEs (multi-national enterprises) are looking to invest in Estonian startups thus creating a opportunity for such programs.

Threats

- Brain drain - many skilled engineers and scientists choose to leave the country and normally move to the US and elsewhere Europe where, many times, salaries are higher, working conditions are better and there is more potential and opportunities.
- Demographics as a significant threat. Estonian population is declining and there is a shortage of skilled and well-educated labour already. Although we have different supportive initiatives like Teleport and startup visa, the problem will remain unsolved.
- With less money, also investments in R&D have been low in Estonia. Thus meaning that budgets for R&D and technology education can hamper our competitiveness. Especially in the fields, where the cooperation with the universities and researchers is vital.