



4D Cities

Health Innovation as a growth driver

# Tartu Local Action Plan

## Fostering Development of Biotechnology and Medical Industry



**European Union**  
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The local action plan has been created in the framework of the project “4D CITIES: Four drivers for cities: health, innovation, public-private cooperation & networking” which is part-financed by the programme URBACT II. URBACT forms a part of Europe’s cohesion policy and it has been initiated to facilitate the learning and the exchange of best practices between European cities for achieving sustainable urban development.

## ▪ Diagnosis

### A Brief Introduction to the City of Tartu

Tartu is the second largest city in Estonia and often considered to be the country’s cultural and intellectual capital. Tartu was first mentioned in written in 1030, hence the city boasts a history of about 1000 years. The city is the centre of southern Estonia and it has about 100 000 inhabitants. Tallinn, the capital of Estonia is situated ca 190 km northwest of Tartu.

Tartu is a student city. The University of Tartu was established in 1632 and is among the oldest universities in northern Europe. The University of Tartu is the only classical university in Estonia and spearheads the country’s reputation in research and provision of higher education. The University of Tartu belongs to the top 3% of world’s best universities.

Tartu is the hometown also for the Estonian University of Life Sciences, the Baltic Defence College, Tartu Health Care College and several other education institutions. With so many higher education institutions in the city, Tartu inevitably attracts a lot of talented and innovative people from other parts of Estonia and abroad.

Besides being the hub of research and education Tartu is also an important commercial and business centre and an increasingly popular tourist destination. Although recent economic recession has had an impact in Tartu (for example increase of unemployment), the growth has been stable and the population has not decreased, thanks to its central role in the region.

### Biotechnology and Health Sector in Tartu

Tartu is the centre of Estonia’s medical and biotechnological landscape. Tartu University Hospital – the only medical care and training hospital in Estonia – and world-class research and development centres in the field of medicine and biotechnology gathered around the University of Tartu, strong private medical practices as well as biotechnology companies lay the basis for promising future developments.

The University of Tartu includes several important institutions that play a central role in the development of life sciences in the region. The Institute of Molecular and Cell Biology is a leading science centre for research and teaching in rapidly developing fields: fundamental and applied studies in molecular biology, cancer research, human genetics, and studies of complex genetic diseases. Estonian Genome Centre was founded by the Government of Estonia in 2001 and was subsequently reorganised as a research institution affiliated with the University of Tartu. The aim of the centre is to create a database of health, genealogical and genome data of Estonia’s population. By now the centre has created a gene bank with access to more than 50 000 samples. The Institute of Technology is a research and development institution working in close co-operation with other R&D centres and support units that play key roles in

commercialising the intellectual property generated in the University of Tartu. Significant competence and infrastructure is also gathered in the Faculty of Medicine.

Besides the University of Tartu, the life science competences are also developed by Estonian University of Life Sciences and Tartu Health Care College. In addition, Estonian Biocentre is situated in Tartu and the main research direction of it is in the field of molecular medicine.

One of the great assets of Tartu is Tartu University Hospital which is the only teaching hospital in Estonia and therefore working in a close cooperation with the Faculty of Medicine of the University of Tartu. The hospital is the largest provider of medical care in Estonia and it has more than 3800 employees.

The region has also several support organisations that enhance entrepreneurship in the field of life sciences and promote establishment of new companies. Tartu Science Park is the oldest science park in the Baltic States (founded in 1992) and it supports business innovation activities in the region through networking with universities, public and private sector. Tartu Biotechnology Park provides physical infrastructure as well as business development and consultancy services especially to companies and R&D institutions in the fields of biotechnology, medicine and veterinary medicine. The incubation services of Tartu Biotechnology Park are complemented by the Nanolab (cleanroom facilities for nanotech R&D) and the hardware accelerator Buildit situated in Tartu Science Park.

Although biotechnology is not yet among the most important economic sectors in Tartu regarding turnover or employment opportunities, the potential of it in Tartu has already initiated the creation of several high-tech companies. These include mainly biotechnology companies (Icosagen Group, Asper Biotech Ltd, Solis BioDyne Ltd, TBD Biodiscovery, etc.) and also some private hospitals and clinics (Clinic Elite, Medex Ltd, etc.). In addition, the companies and R&D institutions of Tartu participate actively in Estonian competence centres (Bio-Competence Centre of Healthy Dairy Products, Centre on Reproductive Medicine and Biology, Competence Centre for Cancer Research, etc.) and clusters (e.g. Estonian Cell Therapy Cluster). Majority of Estonian biotechnology companies are active in red biotechnology.

Due to the small size of the internal market products and services are mostly exported. The main export markets are Finland, Sweden, Germany and the United States, but the importance of France and Great Britain is growing as well. International networking is enhanced through participation in the research and development projects supported by the European Union.

## Strengths and Weaknesses

In the framework of the 4D Cities network an analysis was carried out to identify the strengths and weaknesses of Tartu region in biotechnology and health sector.

### The **strengths**:

- Tartu is the hub of science and education in Estonia with internationally recognised level of research<sup>1</sup>. Several national competence centres are

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<sup>1</sup> For example according to information on the ISI Web of Science, the University of Tartu belongs to the top 1% of the world's most-cited universities and research institutions in the fields of Clinical Medicine, Chemistry, Environment/Ecology, Plant and Animal Science, Geosciences, Social Sciences (general), Biology and Biochemistry and Engineering (<http://www.ut.ee/en/university/general>).

situated in Tartu<sup>2</sup> and the majority of Estonian life sciences and medicine R&D activities are concentrated in Tartu.

- Good, friendly and safe living environment. Several surveys have showed that people consider Tartu to have the best living environment in Estonia.
- Estonia has some of the most liberal trade and investment laws in the world<sup>3</sup>. To encourage companies to expand their business all corporate investments are exempted of corporate income tax (only dividends are taxed with corporate income tax).
- The workforce in Tartu has the highest level of education in Estonia, every year hundreds of new specialists graduate higher education institutions in Tartu in specific fields of medicine, ICT, biotechnology, business, etc. In addition skilled labour is highly qualified because of large and modern vocational education centres in the region.
- High level of ICT (including a wide coverage of wireless internet connection and many e- and m-services) and infrastructure development.
- Many costs (for example workforce, energy, telecommunication and transport services, real estate, etc.) are considerably lower in Tartu than in other parts of the Baltic Sea Region and in Europe as a whole.
- Emerging interest among universities and vocational schools to teach entrepreneurship-related skills and to cooperate with companies. Increasing activity of the universities to commercialise their knowledge and inventions.
- Good availability of consultation services (including free services supported centrally by the state) for starting companies. Tartu has many consultants in private and public sector with extensive experience in applying for national and EU support for local and regional development. Good network of experienced business support organisations in specific fields (biotechnology, medicine, creative industries, electronics, ICT)<sup>4</sup>.
- Tartu has good road and railway connection with Tallinn (the capital city of Estonia) and regular airline connection with Helsinki (the capital city of Finland).

#### The **concerns**:

- Small size of the market.
- Time-consuming transport connections to larger cities (only one international airline connection) and distance from commercial ports (ca 180 km).
- Lack of experienced entrepreneurship mentors, business angels and venture capital in the region.
- Deficiencies in marketing, awareness-raising (capabilities of companies and R&D institutions) and investment services, no common communication strategy of the support organisations.

<sup>2</sup> Estonian competence centres are structured, long term collaborations in strategic important areas between academia, industry and the public sector (<http://www.eas.ee/en/for-public-and-non-profit-sectors/universities/competence-centre-programme>).

<sup>3</sup> The Wall Street Journal and Heritage Foundation's Index of Economic Freedom ranks Estonia as one of the freest economies in the World (<http://www.heritage.org/index/ranking>).

<sup>4</sup> Tartu Science Park (<http://www.teaduspark.ee/en>), Tartu Biotechnology Park (<http://biopark.ee/?lang=en>), Tartu Centre for Creative Industries (<http://loovtartu.ee/en/>), Buildit Hardware Accelerator (<http://buildit.ee/>), Tartu Business Advisory Services (<http://www.tartu.ee/arinouandla/introduction-introduction>), Smart City Lab (<http://smartcitylab.eu/frontpage/>) etc.

- Evaluation (and financing) of R&D institutions is mainly based on the number of publications, less attention is on (applied) cooperation with companies.
- Partly unused potential in cooperation between companies, R&D institutions and business support structures.

Some of these challenges can be directly linked to the recent smart specialisation study of Estonia. According to the analysis of current strengths Estonia has a considerable potential in biotechnology (strong research) which has been respectively stated as one of the growth areas. This means that fostering development of biotechnology and medical industry (e.g. tackling the weaknesses mentioned above) is additionally in accordance with the national smart specialisation strategy.

#### External **threats**:

- The location of Tartu is not as attractive as larger cities and markets.
- Unstable public financing and decreasing EU funds in the future.
- Changes in tax or legal system on the national level.
- Low level of salaries (compared to average salaries of many other European cities) hinders hiring experienced workforce with international background. On the other hand companies might be more interested in keeping labour costs low to use it as a competitive edge instead of investing in new knowledge and technologies.
- Brain drain – young talents and specialists leave Tartu for larger centres.
- Modest development aspirations and ambitions of companies.

#### External **opportunities**:

- Improvements in relations between Estonia and Russia, increased interest in cross-border cooperation.
- Improvements in transport connections (Tartu-Tallinn highway, railway connections with Tallinn, Riga and central Europe, more international regular airline connections).
- National programmes to support business education and continuously strong public promotion of entrepreneurship.
- Substantial (public) financing to support R&D and technology transfer.
- Universities become more interested in business; more spin-offs, spin-outs and start-ups are founded. The business clusters and companies become more capable partners for research institutions.
- National regulations continue to foster foundation of companies.
- Better use of Estonia's reputation as an e-country to attract new companies and investors to Tartu.
- Growing entrepreneurship activity.
- Influx of qualified labour force.

## ▪ Problem analysis

Although Tartu has several advantages compared to many other cities, a lot remains to be done to fully use the resources present in the city for fostering the economic growth and securing Tartu's position as a place to start doing business in biotechnology and medical fields.

The main challenges of Tartu have been gathered into the development plan of the city for the period 2013-2020<sup>5</sup> and among other issues the document addresses the need for developing entrepreneurship, strong economic clusters and knowledge-based economy in the field of health services and industry. In addition, all stakeholders have emphasised the importance of defining a joint strategy and action plan to foster economic growth based on the innovations in the health sector.

The city faces several challenges in enhancing the economic growth and business creation in health sector. First of all it is evident that several foreign countries (Finland, Sweden, Germany, etc.) offer much higher salaries for highly skilled specialists and professionals (e.g. for doctors and physicians in Finland). Thus it is vital to pay attention to creating appropriate job opportunities in Tartu and using other talent attraction policies to attract and retain qualified staff.

Based on the potential of the biotechnology and medical sector in Tartu there are several opportunities how the city government and other stakeholders can contribute to the growth of the economy. For example, considering the competences present in Tartu and the trend of ageing in Estonia and also in other European countries the development of products and services for older people should be fostered. This and the notable quality of the local health service offer also opportunities regarding medical tourism. Furthermore the medical tourism has been identified as one of the priority sectors in the National Tourism Development Plan of Estonia for the period of 2014-2020<sup>6</sup>.

Considering the quality of research and the number of high-tech companies in Tartu it is clear that there is a significant unused business potential. One of the probable reasons for not using the whole potential of commercialising new ideas and inventions is low attention to technology transfer support. Specific measures and resources are required to strengthen public-private partnerships between the public health sector and the private sector in Tartu.

New potential opportunities for economic development and growth can derive from stronger and better cooperation between companies, universities, business development organisations, health care institutions and public sector. Although various biomedical clusters are already in the area and foster such cooperation, there is a need for debate as regards the potential to co-develop products and services versus the identification of innovation needs in the area among all stakeholders. The social sector so far has benefited less from entrepreneurship initiatives and needs to be more strongly integrated, e.g. via user-based innovation strategies.

Some of the challenges described in the previous overview can be directly linked to the smart specialisation analysis of Estonia<sup>7</sup>. Health technologies and services are among three growth sectors proposed for Estonia. The analysis states that the global demand for health services is growing due to the ageing of world's population. According to the

<sup>5</sup> The development plan of Tartu 2013-2020 (<https://www.tartu.ee/data/Tartu%20linna%20AK%202013-2020.pdf>)

<sup>6</sup> National Tourism Development Plan of Estonia for the period of 2014-2020 (<https://www.rigiteataja.ee/aktivilisa/3191/1201/3015/lisa.pdf>)

<sup>7</sup> Smart Specialisation in Estonia (<http://www.arengufond.ee/en/smart-specialization/overview/>)

current strengths Estonia has considerable potential in biotechnology (strong research) and in e-health (use of ICT for developing health services and products).

ICT has a great potential to horizontally influence the whole health sector. The global developments show that the use of e-solutions in health care will continuously grow during the coming years and since Estonia already has several success stories in this field (Medical Image Bank, Estonian digital prescription system, etc.) it can be one of the future springboards for Estonian economy.

The analysis about smart specialisation in Estonia also indicates several unused opportunities in the export of medical services (including medical tourism). As the advantage of low labour costs is decreasing in Estonia it is necessary to find new ways to offer attractive services for foreign clients. According to the analysis one potential way is to increase the innovation in medical services – for example personalised medicine, telemedicine, e-health. Another important issue associated with these opportunities is the EU directive 2011/24/EU on patients' rights in cross-border healthcare which clarifies the rules on access to healthcare in another EU country, including reimbursement<sup>8</sup>. This will clearly increase the Estonian potential to offer medical services to foreigners. If the state and the local governments are able to use these new opportunities then it might change the job market in Estonia more attractive for medical professionals which in turn would help to reduce the emigration of highly qualified staff from Estonia.

### ▪ Goal setting

The city of Tartu has to be active to foster creation of new workplaces in order to ensure growth of the city, reduce unemployment rate and to provide opportunities for alumni of biotechnology and medical sciences. The goal of the actions proposed is to increase the number of workplaces in biotechnology and health sector by 500 in the next 5 years.

More broadly, these actions form a part of the general initiative for development of entrepreneurship in Tartu region which incorporates many purposes:

- Economic development in the region
- Cooperation between companies, citizens, R&D institutions and business support structures; networking, joint marketing, user-driven innovation, etc.
- Ambitious and growth-oriented companies
- Knowledge-based, strategic and socially responsible management of companies
- Competitiveness of products and services both on internal and external markets
- High productivity; technological development, energy efficiency, high margins and salaries
- Matching the skills and salary expectations of workers; increase of incomes
- Active and entrepreneurial people, positive image of being an entrepreneur
- New and innovative companies; supporting availability and utilisation of pre-seed and seed funding (public and private resources) and improving the incubation services to foster and accelerate commercialisation of new ideas and inventions originating from R&D institutions, companies and citizens

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<sup>8</sup> Cross-Border Care in the EU ([http://ec.europa.eu/health/cross\\_border\\_care/policy/index\\_en.htm](http://ec.europa.eu/health/cross_border_care/policy/index_en.htm))

- Raising awareness of business development services to introduce available opportunities and support schemes

The University of Tartu and other higher education institutions in Tartu (for example Estonian University of Life Sciences and Tartu Health Care College) are constantly preparing new highly skilled specialists for the job market. However, because of the limited workplaces, substantial amount of these young specialists move outside of Tartu (to the capital city or abroad). If there are not enough appropriate job opportunities and challenges in Tartu, then the share of young people will decrease in the city and the attractiveness of the city diminishes.

The analyses of Statistics Estonia show clearly that the population of Estonia has decreased significantly during the last decades and the situation has worsened the most in southern parts of the country (including around the city of Tartu)<sup>9</sup>. There are many reasons for this process but lack of workplaces in the region is definitely among the most important ones. If the number of well-paid workplaces drops then it has a direct negative influence to the whole economy because it decreases demand for other services which in turn affects again the number of workplaces in the region. Hence, in order to avoid such problems in Tartu it is necessary to act before the situation gets too complicated.

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<sup>9</sup> Statistics Estonia (<https://statistikaamet.wordpress.com/tag/rahvaarv/>)

### Stakeholder Analysis and Impact Map

Stakeholder	Input	Activities	Output	Outcome	Indicators
1. Education institutions, including University of Tartu, Estonian University of Life Sciences, Tartu Health Care College, etc.	<ul style="list-style-type: none"> <li>▪ Skilled people</li> <li>▪ Specific know-how</li> <li>▪ Time</li> </ul>	<ul style="list-style-type: none"> <li>▪ Theoretical knowledge combined with intensified cooperation with companies</li> <li>▪ Participation in devising the action plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Upgraded curricula</li> <li>▪ New special trainings according to the needs of the companies</li> <li>▪ More cooperation with companies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Skilled people that meet the expectations of the companies</li> <li>▪ Increased number of cooperation projects between education institutions and companies</li> </ul>	<ul style="list-style-type: none"> <li>▪ More than 50% of the graduates are employed in Tartu and in southern Estonia</li> <li>▪ Number of special trainings</li> <li>▪ Number and size of cooperation projects with companies</li> </ul>
2. Tartu City Government	<ul style="list-style-type: none"> <li>▪ Time (political support, coordination)</li> <li>▪ Financial resources</li> </ul>	<ul style="list-style-type: none"> <li>▪ Coordination</li> <li>▪ Participation in devising the action plan</li> </ul>	Ratified action plan	<ul style="list-style-type: none"> <li>▪ Increased number of new jobs to offer new opportunities for graduates and specialists</li> <li>▪ Increased living standard</li> <li>▪ Increase of tax revenues</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number of new jobs</li> <li>▪ Increase of the average salary</li> <li>▪ Increase of tax revenues</li> </ul>
3. Tartu Science Park	<ul style="list-style-type: none"> <li>▪ Time (process management)</li> <li>▪ Specific know-how</li> </ul>	<ul style="list-style-type: none"> <li>▪ Process management with the support of the city government</li> <li>▪ Participation in devising the action plan and its implementation (monitoring the goals)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Action plan</li> <li>▪ Implementation of the action plan</li> </ul>	Implemented activities to increase number of jobs	<ul style="list-style-type: none"> <li>▪ Number of new jobs</li> <li>▪ Increase of the average salary</li> <li>▪ Increase of tax revenues</li> </ul>

Stakeholder	Input	Activities	Output	Outcome	Indicators
4. Tartu Biotechnology Park	<ul style="list-style-type: none"> <li>▪ Time</li> <li>▪ Specific know-how</li> </ul>	Participation in devising the action plan and its implementation	<ul style="list-style-type: none"> <li>▪ Action plan</li> <li>▪ Implementation of the action plan</li> </ul>	Implemented activities to increase number of jobs	<ul style="list-style-type: none"> <li>▪ Number of new jobs</li> <li>▪ Increase of the average salary</li> <li>▪ Increase of tax revenues</li> </ul>
5. Estonian Development Fund	<ul style="list-style-type: none"> <li>▪ Know-how (smart specialisation)</li> <li>▪ Financial resources</li> </ul>	<ul style="list-style-type: none"> <li>▪ Studies, analyses</li> <li>▪ Financing measures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Development of smart specialisation strategy for Estonia</li> <li>▪ Measures for regional development</li> </ul>	<ul style="list-style-type: none"> <li>▪ Balanced regional development</li> <li>▪ Increased living standard</li> <li>▪ Increased quality of services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number of new jobs (outside of the capital city)</li> <li>▪ Increase of the average salary (outside of the capital city)</li> </ul>
6. Companies - Dorpat - Aura - Elite Kliinik - etc.	<ul style="list-style-type: none"> <li>▪ Time</li> <li>▪ Specific know-how</li> <li>▪ Practice base</li> <li>▪ Employer, creating jobs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Practice opportunities combined with intensified cooperation with education institutions</li> <li>▪ Devising the action plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Input to the action plan</li> <li>▪ Development of (new) services</li> <li>▪ New target groups</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased turnover and profit</li> <li>▪ Increased number of new jobs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number of new jobs</li> <li>▪ Increase of turnover and profit</li> </ul>

## ▪ Framework for delivery

The coordinator of the implementation of the Local Action Plan is Tartu Science Park. Tartu City Government takes the leadership in public authority. In addition, the action plan specifies Tartu Biotechnology Park and the University of Tartu as the implementing parties. These institutions constitute the team for the implementation of the action plan.

Other involved organisations are the following:

- Estonian University of Life Sciences
- Tartu Health Care College
- Estonian Chamber of Commerce and Industry
- Bio-Competence Centre of Healthy Dairy Products
- Competence Centre on Reproductive Medicine and Biology
- Competence Centre of Food and Fermentation Technologies
- The Estonian Intellectual Property and Technology Transfer Centre
- Other relevant organisations and companies

The following methods and activities have been chosen to achieve the goals:

- Investments: development of a modern webpage to promote biotechnology and medical knowledge and technology of Tartu region.
- Cooperation initiatives:
  - continuing work with the group of representatives of the organisations (companies, R&D institutions and business support structures) aimed at developing biotechnology and medical sector in Tartu,
  - regular meetings to share information and launch new initiatives to support development of biotechnology and medical industry in Tartu,
  - stronger and more systematic attention on developing closer links and cooperation with business angels and venture capitalists and
  - proactive involvement in international networks and projects;
- Research and analyses:
  - formation of coordinated action plan to attract foreign companies to the region of Tartu and a wider Biotechnology and Medical Development Plan for the region of Tartu (expansion of the implementation plan drafted in the framework of the 4D Cities project) and
  - formation of a study about developing incubation services in the region of Tartu 2016-2020;
- Study visits: exchange competences between partners and with other business support structures;
- Trainings:
  - systematic attention on developing regular cooperation between thematic experts and universities, including involvement of experts in teaching courses in the universities and making these courses more open for companies and inventors,
  - start a greater and more systematic involvement of foreign experts and investors in developing local companies (trainings, seminars, consultations) and developing a network of mentors;
- Communication and promotional activities:
  - public information and leaflets about activities and results,

- national campaigns and fairs for start-ups, researchers and citizens to network,
- regional promotion of short videos about companies, R&D institutions and business support structures and
- gaining more media attention to the issues of commercialisation, entrepreneurship, citizen involvement and start-up companies in biotechnology and medical sector.

Partners see this approach as a logical integration: investments as well as upgraded competencies via trainings and study visits and planned promotional activities are prerequisites for high-quality R&D aimed at developing and testing new solutions. The results of the initiative will serve the public (citizens) and be used by target groups and interested parties.

### ▪ Action Plan and Schedule

The brief overview about the current situation in Tartu presented above indicates that there are several options for Tartu to activate the biotechnology and medical sector to achieve additional economic growth. For instance there are strong competences in biotechnology, e-health and medical services that are continuously developed further and should be commercialised more in the future. The discussions with some of the stakeholders have supported the ideas of developing medical tourism in Tartu. The medical tourism has been proposed for several reasons:

- High level service and infrastructure in Tartu University Hospital and in private hospitals with affordable price compared to other European countries
- Huge potential market in neighbouring countries
- Scientific competence in the research institutions in Tartu
- Experienced business development organisations in Tartu

The potentially considerable increase of the turnover generated by the medical tourism would benefit the city in many ways:

- Creating new attractive job opportunities for doctors and physicians and therefore reducing the emigration of medical professionals
- Creating new jobs for other medical specialists (e.g. rehabilitation) and in different economic sectors (spa, catering, accommodation, entertainment, etc.)
- Enhancing the reputation of the city as an attractive tourism destination
- Strengthening the city's position as a competitive international competence centre

One of the most important markets with great potential for medical tourism is western Russia. However, as the relations between the EU and Russia have deteriorated during the crisis in Ukraine the cross-border business environment has become highly unstable. Therefore the Local Action Plan is focused on somewhat wider activities aimed at development of biotechnology and medical industry in Tartu region.

The actions to be implemented are divided into four groups:

- Strengthening the cooperation between companies, R&D institutions and business support structures
- Improving the incubation and business development services
- Supporting the availability and utilisation of the pre-seed and seed funding
- Raising awareness of incubation and business development services

## Cooperation between companies, R&D institutions, business support structures and citizens

**Description:** Tartu is not a big city and therefore it is highly important to consolidate local resources. Biotechnology is seen as one of the key areas for Tartu in the future and therefore it is necessary to initiate and maintain strong cooperation between companies, citizens, R&D institutions and business support structures to be more competitive at international level, accelerate the development of new ideas and solutions, attract foreign investments and support growing companies.

### Responsible organisations:

- Tartu City Government
- Tartu Science Park

### Involved players:

- Tartu University
- Estonian University of Life Sciences
- Tartu Biotechnology Park
- Companies, investors and financiers
- Citizens

### Work plan:

Activity	Duration
Continuous work with the group of representatives of the organisations (companies, R&D institutions and business support structures) aimed at developing biotechnology and medical sector in Tartu (sharing information, launching new initiatives, etc.)	regular meetings <sup>10</sup>
Formation of a coordinated action plan to attract foreign biotech and medical companies and investors to the region of Tartu	2015-2016
Start of coordinated joint operations to attract foreign companies and investors to the region of Tartu (implementation of the action plan)	2016
Start of systematic joint marketing of biotech and medical competences (including services and products) on target markets	2016
Formation of a wider Biotechnology and Medical Development Plan for the region of Tartu (expansion of the implementation plan drafted in the framework of the 4D Cities project)	2016-2017
Systematic attention on developing regular cooperation between thematic experts and universities, including involvement of experts in teaching courses in the universities and making these courses more open for companies and investors	2016-2020

**Budget:** 20 000-50 000 EUR (per year)

## Incubation and business development services

**Description:** Tartu is fortunate to have two science parks (Tartu Science Park, Tartu Biotechnology Park) providing accelerator and incubation services that are associated in developing entrepreneurship in biotechnology and life sciences. Tartu Biotechnology Park is the main

<sup>10</sup> About 4-6 meetings in a year

incubator and provider of consultancy for biotechnology companies in Tartu. In order to continue successful work it is necessary to constantly improve the services offered.

Responsible organisations:

- Tartu Science Park
- Tartu Biotechnology Park

Involved players:

- Tartu University
- Estonian University of Life Sciences
- Companies, investors and financiers
- Tartu City Government

Work plan:

Activity	Duration
Start of greater and more systematic involvement of foreign experts and investors in developing local companies: trainings, seminars, consultations	2015
More attention on developing the network of mentors, deeper engagement of mentors	2015
Study about developing incubation services in the region of Tartu 2016-2020	2015-2016
Increase of focus on internationalisation (e.g. study visits and roadshows in Europe, United States, Singapore, etc.)	2015-2020
Beginning of closer cooperation and twinning with successful international incubators and other similar programs aimed at supporting the creation and growth of companies in biotechnology and medical sector	2016

Budget: 30 000-60 000 EUR (per year)

**Availability and utilisation of the pre-seed and seed funding**

Description: the biotechnology industry is not very prominent in the region of Tartu. However, the researchers and students of local universities have proved to be able to generate innovative ideas and launch dynamic start-ups. In addition there is a strong presence of medical institutions with highly skilled professionals. In order to support the further development it is important to create opportunities of pre-seed and seed funding to help new business ideas to grow.

Responsible organisations:

- Tartu University
- Tartu Science Park
- Tartu Biotechnology Park

Involved players:

- Companies, investors and financiers
- Estonian University of Life Sciences
- Tartu City Government
- Citizens

Work plan:

Activity	Duration
Setting up a fund at the University of Tartu to finance the early-stage development activities (e.g. building prototypes, supporting development teams, etc.) to contribute to commercialisation of the knowledge created in the university	2014
Stronger and more systematic attention on developing closer links and cooperation with business angels and venture capitalists focused on biotechnology and life sciences	2015-2020
Organisation of regular investor seminars in Tartu region to share knowledge for start-ups and to present them to investors	2015-2020
Support for local companies to participate in international recognised venture capital and business angels' events	2016-2020

Budget: 15 000-25 000 EUR (per year)

### Awareness of incubation and business development services

Description: in order to connect the ideas with the commercialisation potential with the specific knowledge about technology transfer and incubation it is necessary to raise continuously the awareness of available services and opportunities.

Responsible organisations:

- Tartu Science Park
- Tartu Biotechnology Park
- Tartu University

Involved players:

- Estonian University of Life Sciences
- Companies, investors and financiers
- Tartu City Government
- Citizens

Work plan:

Activity	Duration
More attention on regular trainings and courses about technology transfer, commercialisation and intellectual property for the researchers and scientists	2015
Regular production of short videos about companies, R&D institutions and business support structures involved in technology transfer in biotechnology for potential start-ups, investors, etc.	2015-2020
Start of systematic efforts to gain more media attention to the issues of commercialisation, technology transfer and start-up companies in biotechnology and medical sector	2015
Development of a modern website about biotechnology and medical sector in Tartu region	2015
Stronger and more proactive involvement in international networks and projects <sup>11</sup>	2015–2020

Budget: 25 000-40 000 EUR (per year)

<sup>11</sup> Including potential follow-up projects with the partners of 4D Cities in the framework of Horizon 2020 (or other programs linked to health innovation and economic growth in a synergy of public and private sectors)

## ▪ **Outputs – Outcomes – Indicators**

The goal of the plan is to increase the number of workplaces in biotechnology and health sector by 500 in the next 5 years.

The supporting impact indicators of the action plan are:

- Number of new enterprises in biotechnology and health sector
- Incomes of residents – annual equivalent net income of the residents
- Employment rate – the proportion of employed people among residents between people of 16 years of age and retirement age
- Higher entrepreneurship activity – the number of economically active enterprises per 1000 residents

In short, the added value of the proposed actions is the following:

- New attractive job opportunities for biotechnology and medical professionals and therefore reduced emigration of highly skilled specialists.
- New jobs for other medical specialists (e.g. rehabilitation) and in different economic sectors (spa, catering, accommodation, entertainment, etc.; indirect impact).
- Increase in living standards and tax revenues.
- Better quality of the health services.
- Better reputation of the city as an attractive tourism destination.
- Stronger position of the city as a competitive international competence centre.
- More incentives to stay in Tartu.

## ▪ **Funding scheme**

The activities of the action plan will be implemented using the allocations of the existing budget for operation costs of the support organisations and funding from national programmes (including funds directed at developing Smart Specialisation in Estonia).

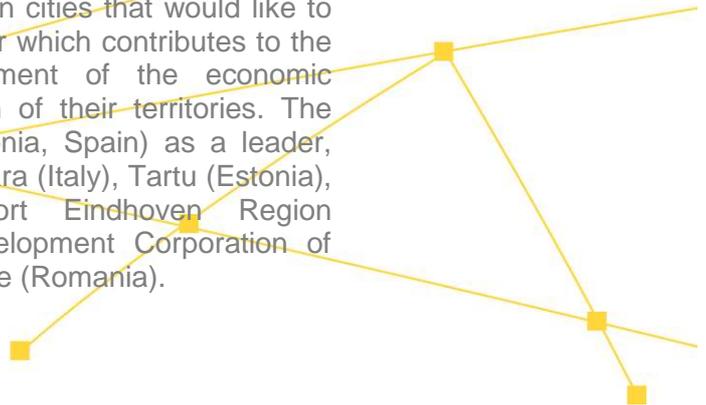


## URBACT II

**URBACT** is a European exchange and learning programme promoting sustainable urban development. It enables cities to work together to develop solutions to major urban challenges, reaffirming the key role they play in facing increasingly complex societal challenges. It helps them to develop pragmatic solutions that are new and sustainable, and that integrate economic, social and environmental dimensions. It enables cities to share good practices and lessons learned with all professionals involved in urban policy throughout Europe. URBACT is 500 cities, 29 countries, and 7.000 active participants.

**4D Cities** is an URBACT project that aims to develop cities through the interaction of the actors which operate in the fields of Health and Innovation such as the knowledge, the healthcare system, the business and the citizens. It involves 8 European cities that would like to create a new productive sector which contributes to the diversification and enhancement of the economic activities and social cohesion of their territories. The partners are Igualada (Catalonia, Spain) as a leader, Leeds (United Kingdom), Novara (Italy), Tartu (Estonia), Plunge (Lithuania), Brainport Eindhoven Region (Netherlands), Business Development Corporation of Jena (Germany) and Baia Sprie (Romania).

[www.urbact.eu/4dcities](http://www.urbact.eu/4dcities)



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