

## SpaceTEM: three years experience of innovative cross-border initiatives

SpaceTEM is an EstLat project aiming to develop the NewSpace industry in Estonia and Latvia through the increase of cross-border entrepreneurial activities. To this purpose, a wide range of initiatives have been implemented since the beginning of the project in March 2017 until the end of 2019.

SpaceTEM linked together Estonian and Latvian entrepreneurs, students, companies, policymakers and research institutes in order to enlarge the resources available in the region and expand the pool of partners to collaborate with. The project was launched by Tartu Observatory, University of Tartu (UT), together with sTARTUp HUB Ltd, University of Latvia, ZINOO Ltd, Ventspils University College, the Estonian Student Satellite Foundation, the UT Johan Skytte Institute of Political Studies and the Green and Smart Technology Cluster. These partners realised the great potential that the NewSpace movement can represent in the future, offering new opportunities for space enterprises and for private investments. According to the Space Foundation 2015 report, the space sector is currently worth more than 300 billion euros on a global scale and is expected to grow in the following years.

The SpaceTEM project aimed to create new connections through trainings, workshops, hackathons, internships as well as new projects through ESA contracts. Large attention was paid to the youth – the potential entrepreneurs of the future. SpaceTEM addressed the lack of practical hands-on experience often emerging at the end of higher education, which may hinder students' competitiveness in the labour market. Therefore, it provided 75 paid internships in 3 years. At the beginning of each summer, an orientation event was organised for the new interns. In June 2017, students from the two countries and their supervisors met for the first time in Tartu Observatory. Internships generally lasted for 10 weeks and concluded with a conference allowing trainees to show the results of their experience. In September 2017, interns had the unique opportunity to participate in the European Planetary Science Congress (EPSC) in Riga. The event gathered more than 800 people from 40 countries. On that occasion, SpaceTEM students participated in the Early Career poster session and prepared posters summarising their summer experience. The winner of the Outstanding Student Poster Award was Anni Kasikov, University of Tartu physics student, who did her SpaceTEM practice at the University of Latvia researching new carbon stars

The list of SpaceTEM interns did not stop there. In 2018 and 2019, youngsters were offered the chance to get hands-on experience in the space technology field, with a wider choice of private companies. Among others, internships took place in Milrem AS, SIA Mass Portal, KappaZeta OÜ, Heliocentric Technologies Latvia, Captain Corrosion OÜ, SIA SMW Wheels, AS HansaMatrix Golbriak

Space OÜ, PowerUp Fuel Cells OÜ and SIA Emergn. Overall, interns could acquire new programming skills, work with scientists and engineers, participate in more practical activities, such as the design of new satellite and stratospheric balloon assemblies and the development of missile control, astronomical and satellite data processing algorithms.

However, the project initiatives were not limited to this. Seminars on effective science and innovation communication were organised in October 2017 in Tartu and in April 2019 in Riga and as a webinar. The aim of the seminars was to provide scientists and engineers with useful guidelines to explain their research to the public. In addition, two Space Hackathons took place as part of the project. The first Garage48 SpaceTech hackathon was held in Riga in May 2018, organised by Garage48, sTARTUp HUB, Heliocentric Technologies Latvia and Green and Smart Technology Cluster. The event focused on three main issues: using satellite data for terrestrial solutions, promoting technology and space education, tackling the main obstacles encountered by space companies. 16 ideas emerged in total, from which 9 prototypes were realised. The winner was Forest Numb, aimed at facilitating forest monitoring through Sentinel satellite imagery. This was followed by WaterSat, a monitoring system to evaluate water in reservoirs thanks to satellite altimetry imagery, then VR Creative Space, using virtual reality to teach how to build satellites. Later that year, teams worked on business ideas tackling issues such as space debris mitigation, repairing satellites in-orbit and finding faults in electromechanical systems.

In May 2019, Garage48 SpaceTech took place at UT Tartu Observatory, where ten teams worked on their ideas. The first prize was awarded to DIY satellite building kit Cuby. Cuby is an educational kit for youngsters, providing them with the basic programming skills in satellite development. The follow-up event Garage48 SpaceTech Bootcamp, an intensive 5-day course, was offered to the five teams with the highest business potential: Cuby; OM5G, to help telecom companies find the best locations for their services; PeatLog, allowing governments to map mining activities more easily; SatCraft, linking companies wishing to test their products in space with satellite providers; Stargazing, an app to identify the best stargazing locations in urban environments. The bootcamp provided teambuilding activities, mentoring lessons, lectures and interactions with customers. It aimed to make the product ready for the market, test customers' reception and search for possible investors.

Although there is still much room for further development and Latvia has not become a member state of the European Space Agency (ESA) yet, the SpaceTEM project gave an important boost to the space technology sector in the two bordering countries. All the partners will continue to nurture the achievements of the project, including the creation of a new generation of entrepreneurs, engineers and researchers and new collaborations.



**Interreg**  
Estonia-Latvia  
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EUROPEAN UNION

# SpaceTEM

**Training the next generation  
entrepreneurs  
with hands-on methods  
in space STEM**

**2017 - 2019**



- Strengthen entrepreneurial cross-border cooperation
- Increase youth entrepreneurial capabilities and marketability
- Facilitate the establishment of new businesses and initiatives
- Link Estonian and Latvian entrepreneurs
- Boost the development of new projects



- 75 paid internships for young entrepreneurs
- 31 jointly organised events including trainings, workshops, hackathons, conferences, school visits and media seminars
- Policy analysis about space governance in Latvia: the current state, future challenges and plan of actions, comparison to Estonia's path to ESA
- Raise awareness among the general public about space technology entrepreneurship