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## TEST-4-SME Network's Sustainability Strategy

**Prepared by** Giorgi Davidovi (University of Tartu), Hector C. Pagan (University of Tartu), Egidija Rainosalu (Centria UAS)

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## Introduction

The long-term sustainability strategy is a vital element of TEST-4-SME Network. The network, as a multi-stakeholder institutional arrangement, aims to sustain itself over at least 5 years after the TEST-4-SME project is finished.

Ensuring the sustainability of the network was the part of TEST-4-SME work from the very beginning of the project. UT as the Leading partner of network establishment and development, was actively involved in the project process to ensure that high quality services will be provided by the network and that network will sustain its activities also after the project funding is exhausted.

As a critical aspect of ensuring the livelihood of TEST-4-SME Network, building the routinization of activities and financial resilience within the network (P. Pluye, L. Potvin, J. L. Denis, J. Pelletier, 2004; Scheirer, M. A. 2005) became the main focus of the sustainability work. For this reason, sustainability was considered and reflected upon when delivering any output under the TEST-4-SME project.

The network sustainability strategy together with the sustainability action plan consolidate the critical elements of continuous work of TEST-4-SME Network. The sustainability strategy and action plan cover the timeframe of 2020-2025.

The sustainability strategy explores organizational arrangement of the network, foreseen technological improvement, and potential national and international funding sources. The strategy defines the mission of TEST-4-SME Network. It addresses the technological advancement of the network competence centers over the next 5 years; collaboration and funding of the network activities. The sustainability action plan lays out the technical upgrades of network members and investment plans in details. The sustainability strategy is also a reference document to the different deliverables of the network and lays out all sustainability elements that were considered when establishing the TEST-4-SME Network.

## Section 1 – Strategic Mission and Goals of TEST-4-SME Network.

TEST-4-SME Network in the Baltic Sea region provides the testing and consultation for electronics SMEs (small and medium-sized enterprises) during early product development. The foundation process of the Network started in 2017 by bringing together eight academic institutions with the physical infrastructure and technical expertise to offer testing and consultation but lacking entrepreneurial experience in marketing, service pricing, network management and service delivery

Baltic Sea Region BSR is one of the most productive and robust business environments in Europe, generating 2% of the world's GDP. SMEs are the backbone of the BSR economy, like all of Europe, where 99% of businesses are SMEs. The global electronic components market is projected to reach 209.2 billion EUR by 2020, driven by rapid developments in smart electronics in automotive, healthcare, industrial and consumer electronics sectors. Along with the significant impact on the economy, the electronics sector in BSR is facing several challenges such as specific needs in terms of conformance testing, standardization and entering the export market. These challenges resonate the needs to build the capacity on the steps involved in the conformance/certification process for various standards. The electronic sector in BSR required consultation on utilizing the appropriate tests suited to prove/ensure conformity efficiency, interoperability, or compliance for their product. The fundamental gap in the sector is early pre-testing during the product development phase to identify and address problems before small and medium-size enterprises pursue more expensive certification. All electronic products need to prove conformity to standards, which requires testing of product prototypes.

By establishing the Test-4-SME network, leading academic centers addressed these challenges and set a mission to

- Support the innovative electronic products produced by the SMEs in BSR to conform to the international standards so they can be successfully placed in global markets.

Strategic objectives of the network are to

- Increase the global competitiveness of the electronic products created in BSR
- Establish the Baltic Sea regional hub for delivering the testing and standardization of the innovative electronic products.

Main goals of the network are to

- To improve the capacity of research and innovation infrastructures and integrate their users (SMEs) in value chains and provide them with access to state-of-the-art technologies and R&D&I facilities.
- Provide electronics SMEs accessible and comprehensive testing services in earlier phases of product development, to increase their ability to respond to changing market demands quickly.

- Share knowledge across the network to improve the quality and efficiency of testing to speed up the process of product development, awareness on compliance testing of electronics at early development stages of products between producers.
- Facilitate innovative electronics production market in the BSR through effective testing methods at early product development stages.

The goals are achieved by:

- Establishing multiple testing centers, so SMEs can be spread across the network, routed to labs to ensure that there are shorter queues.
- Combining the expertise of its partners to provide knowledge and training about a wide range of different standards, directives, and procedures for certification. This includes knowledge of the measures that have been put in place in each country represented in our partnership.
- Circulating the information amongst partners so that firms can move through our network from lab to lab as they progress through the product development chain. This approach means that in addition to ensuring that SMEs meet minimum standards they will be able to develop better products that are more innovative and competitive in the international market.
- Unifying the approach for intake, assessment, and documentation so BSR SMEs will receive their required testing services familiarly and efficiently.

Since the establishment in 2017, TEST-4-SME network evolved and engaged various stakeholders from the sector. TEST-4-SME consists of 7 core partners, which are research organizations that operate labs capable of carrying out a wide range of testing in 12 categories relevant for electronics SMEs. Additionally, there are numerous services providing SMEs, new research and development partners.

Please see annex 1 for the full list of TEST-4-SME Network members.

## Section 2 – Governing Structure and Management of the Network

### 2.1 Governing Framework

The framework is defining the selected governing structure of TEST-4-SME Network (NDGP, 2019).

**Collaborative Leadership:** Promoting trust, transparency with information, creating opportunities for problem-solving and keeping abreast of the broader environment with the organization's future in mind. It also includes a focus on members, partners, and stakeholders relative to the network's drive to meet its mission and attain its vision.

**Member-Driven Decisions:** Incorporating network members' needs into decisions for network products and services along with articulating network value as seen specifically through marketing efforts.

**Ongoing Evaluation and Measurement:** Intentional evaluation of organizational efforts toward both goals and activities. Assessment is designed as a formal plan that is monitored as part of a strategic planning cycle. There is a specific focus on involving organizational leadership and open communication of results.

**Effective Communication:** Intentional communication with members, partners, and stakeholders.

**Change-Ready and Adaptable Workforce:** Proactive investment in network staff to support and develop a change-ready culture and workforce that can adapt to a changing business environment.

**Continuous Improvement:** Consistent use of process improvement tools and techniques, systematize review of procedures to ensure effective process, and valued network services.

**Sound Financial Infrastructure:** A focus on financial processes and procedures to purposefully address financial stability through savings and diverse revenue generation.

### 2.2 Structure of Network

The strategic decision has been made by the core network members to maintain the network as a centralized structure but to decentralize the service provision. Bilateral agreements will be made between partners providing particular services.

To maintain the TEST-4-SME Network, members agreed to share the responsibility and facilitation of the network on a rotating basis, changing hands every 6 months. The Facilitator of the network will be responsible for administration and supervision of the network during the prescribed period. Matters requiring decisions will be discussed with core partners and also others if required, with a consensus model used for decision making.

The Network has one primary contact in each country, additionally each core organisation will name a primary and secondary contact point, to represent the organization in the network.

When potential customers contact the Contact point in their country, the Contact point will determine which lab(s) they will work with to provide the service. The Contact point may choose to provide the service by themselves or make referrals to one or more other labs in the network. A national contact point is just the entry into the network, and the final pricing will be agreed upon between service provider(s) and the client. The primary service provider might subcontract TEST-4-SME network's partner if needed.

The guidelines regarding these bilateral pricing arrangements are incorporated into the standard pricing methodology (Pricing Protocol, TEST-4-SME, 2020).

The detailed structure of network member responsibilities and tasks as well as networks facilitation rotation schedule is clarified in the TEST-4-SME Network sustainability action plan (Action Plan, TEST-4-SME, 2020).

## Section 3 - Service model of TEST-4-SME Network.

The labs and the testing competences of the network are:

- Climatic testing: TU, Centria
- EMC testing (Electromagnetic Compatibility): TU, Centria
- Material and compositional characterization, testing and analysis: RTU, Centria
- Electroconductivity/resistivity of materials: TU, Wismar, RTU, ProTech, Centria
- Manufacturing processes verification: RTU, Centria
- Characterization and testing of batteries, solar cells and electrical systems: Wismar, RTU, ProTech, Centria
- Sound and noise characterization and modelling: RTU
- Thermal characterization and testing: TU, Centria
- Mechanical and structural characterization and testing: TU, RTU, Centria
- The spectral responsivity of radiometric sensors: TU
- Calibration, characterization and measurements of optical systems: TU, Wismar, RTU, ProTech
- Bioelectromagnetic characterization and testing: LU

Since the establishment of the network, the list of the service and testing facilities was updated after enlarging the network with new network members and partners.

The TEST-4-SME Network looked in-depth to understand better the needs of SMEs and service provision issues in the Baltic Sea Region. For this reason, companies and enterprises, operating in the field of electronics and electronic equipment, were surveyed and consulted.

Companies and enterprises, operating in the broad spectrum of electronics and electronic equipment, received consultations regarding testing electronic products in the Baltic Sea Region. The primary purpose of the consultations was to offer advice and guidance to SMEs on the types of testing needed to comply with international standards and also to provide technological solutions and information in the areas of electronic product testing. In total, 137 consultations were conducted, and additionally, 102 SMEs (small or medium enterprises from Finland, Latvia, Lithuania, Estonia, Finland and Germany) were consulted on SME meetings or in laboratories. The main results showed that the companies are particularly interested in electromagnetic compatibility testing consultations. Also, various consultations regarding sustainable energy sources, solar cells, etc. were in high demand. Companies and enterprises were generally satisfied with the outcome of the provided consultations, which usually resulted in the proposed solution or provided information, and which were held mostly via e-mails (55 consultations), by phone (50 consultations), and during physical meetings (32 consultations).

The purpose of the survey was to analyze and identify the needs of small and medium-sized enterprises in testing electronic products in the Baltic Sea region. In total, 118 companies



from Latvia, Lithuania, Estonia, Finland and Germany completed the survey. Results confirmed that the

- Companies do not know what to test and where to test, not fully aware of the importance of testing the new products, ensuring product quality and safety and reducing the costs of putting it on the market.
- Improvement of availability of testing infrastructure should be made for such types of testing, as climatic testing, shock & vibration testing, manufacturing processes verification and characterization & testing of batteries, solar cells & electric systems.

These findings were significant to consider when reflecting on the sustainability of the network. Network explored in-depth the services in need among the network members first. Currently, the TEST-4-SME Network offers full coverage of testing competencies identified as necessary in the survey.

The full list of the currently available service and individual testing competencies are presented in the annex 2 TEST-4-SME Network service database.

Besides enhancing the existing testing competence based on the finding, network members have also planned the technological updated to address these needs. Network members planned the technological upgrades in similar testing areas. For example, PROTECH in Lithuania plans the Solar module's power measurement technical upgrade of Calibration of equipment; CENTRIA in Finland is obtaining the FE-SEM, BIB, Sputtering equipment or the manufacturing processes verification and characterization testing. In overall, over the next five years, network members plan 27 technological upgrade worth of 4870000 Euros.

The full list of the technological upgrades is incorporated in TEST-4-SME Network Sustainability Action Plan (pp.11-12)

## Section 4 – Sustainable funding for the Network

Financing is a critical part of TEST-4-SME Network Sustainability. Service providers are public research and development organizations and most of the funding is dedicated to specific projects. It is agreed to sustain the network at the lowest possible cost. The network members agreed to pursue cooperation under the TEST-4-SME network framework and to seek for additional funding sources.

It has been established that partners will contribute by staff effort to networks facilitation on a rotation basis. Marketing of the network services is carried out by each partner as well as through the online platform <http://www.testelectronics.eu/>, which will be maintained by RTU until 2025.

The network partners agreed to pursue joint research proposals under Horizon Europe, such as e.g. SME instrument, or other international initiatives that are focused on product development (i.e. moving along the TRL scale) as well as to apply for funding schemes that would support network-wide training activities or staff exchanges, such as Erasmus, RISE or ITN.

TRAIN-ECO – “TRAINing for professionals and entrepreneurs on ECO-innovation in electronics product development” funded by Erasmus+ Programme engages 4 core partners from the network and will utilize TEST-4-SME platform for training SMEs and also network members. TRAIN-ECO is granted with 196 310 € and will enable closer cooperation between partners and strengthen the Test-4-SME Network. More details about the project are presented in Annex 4.

TEST-4-SME Network members will also seek for new projects and will be involved in future project proposals. There is usually a need for a strong connection between the sectoral partners, and it is good to demonstrate that there is some history of collaboration. Projects have dissemination activities, and we can align the network meeting with them to keep it alive and going. As part of the sustainability efforts, University of Tartu identified the potential international funding sources that would allow the network members to pursue the partners under the network framework. In Annex 3, there are potential funding sources.

Besides efforts mentioned above, a core member of TEST-4-SME Network identified several public and private projects planned over 2020-2025 by the individual network members. Members identified 18 projects in total, bringing 53,213300 MLN Euros of possible investments related to development of expertise and services. For detail information of planned funding and investments see the TEST-4-SME Network Sustainability Action Plan Annex 1.

For further information on an action plan on the financial issue see the TEST-4-SME Network Sustainability Action Plan.

## Section 5 Enhancing the impact of TEST-4-SME network

### 5.1 The potential partner networks for TEST-4-SME Network.

Establishing strategic partnerships with the sectoral stakeholders across the Baltic Sea Region was an important part of our sustainability efforts during the project. TEST-4-SME project's core partnership was extended by relevant organization in all participating countries. Additionally, cooperation with the Ecolabnet project was established. Ecolabnet can provide services on the design process, product-service system development, concept design, user interface design for the SMEs representing electronics industry. Test-4-SME can offer testing services for SMEs from the electronics sector in Ecolabnet. The full list of the networks and different stakeholder is available in annex 5. Network expansion will also continue after the project period.

### 5.2 TEST-4-SME network input to EU and BSR

A critical element of the sustainability of the network is its continuing effect on the European Union's policy aims both on the EU and Baltic sea regions level. For this reason, TEST-4-SME network seeks to be actively involved in providing input into the BSR funding scheme and setting the policy priorities. Two recent examples of this includes:

- UTARTU participated in a video meeting with the European Commission's Regional Development Directorate regarding support for research for the new period of the structural funds in Estonia in July 2020
- UTARTU participated in the EU Research and Innovation Days, which was held online in September 2020.

The TEST-4-SME Network also contributes indirectly to the EU2020 strategy priorities:

1. Smart growth that develops an economy based on knowledge and innovation: Our project seeks to transmit knowledge from research institutions in the region to electronics SMEs so that they can more rapidly develop innovative products;
2. Sustainable growth that promotes resource-efficient, greener, and more competitive economy: Our testing helps our SMEs to produce electronics prototypes and components that are more energy efficient. This includes EMC testing; Manufacturing processes verification; Characterization and testing of batteries, solar cells, and electrical systems; and Mechanical and structural characterization and testing. Furthermore, by complying with EU/international standards, many of these components can enter supply chains in Europe so that greener electronics end-products are produced;
3. Inclusive growth that fosters a high-employment economy delivering economic, social, and territorial cohesion. TEST-4-SME will increase cohesion between the BSR and Europe and within the BSR itself as it brings partners from countries throughout the region to collaborate, sharing knowledge and resources.

## References

- P. Pluye, L. Potvin, J. L. Denis, J. Pelletier, Program sustainability: focus on organizational routines, *Health Promotion International*, Volume 19, Issue 4, December 2004, Pages 489–500, <https://doi.org/10.1093/heapro/dah411>
- Scheirer, M. A. (2005). Is sustainability possible? A review and commentary on empirical studies of program sustainability. *American Journal of Evaluation*, 26(3), 320-347. <https://journals.sagepub.com/doi/pdf/10.1177/1098214005278752>
- Project Sustainability Action Plan Guide Rural Health Network Development Grantee Program, August 2019, pp5.
- TEST-4-SME Network Sustainability Action Plan
- Testing Service Pricing Protocol For Test-4-SME, 2020,

# Annex 1 TEST-4-SME Network Members

## Founding Members

	<b>Organization</b>	<b>Description</b>
<b>1</b>	<b>UNIVERSITY OF TARTU</b>	Tartu Observatory of the University of Tartu provides enterprises with environmental, EMC and ESD testing, optical measurements, development of space technology, and consultations. The laboratories include special electrostatic discharge (ESD) safe areas, cleanroom (Class 8, ISO 14644-1) and anechoic environment. All laboratories include automatic control for ambient temperature and humidity conditions. Web: <a href="http://www.kosmos.ut.ee">www.kosmos.ut.ee</a>
<b>2</b>	<b>RIGA TECHNICAL UNIVERSITY</b>	Riga Technical University's Institute of Energy Systems and Environment (RTU IESE) has become the leader of environmental science and engineering in Europe. The laboratories of environmental monitoring, solar energy systems, building energy efficiency, biosystems and combustion research provides wide range of environmental testing, Calibration and verification. Web: <a href="http://www.rtu.lv">www.rtu.lv</a> Web: <a href="http://www.videszinatne.lv">www.videszinatne.lv</a>
<b>3</b>	<b>UNIVERSITY OF LATVIA</b>	Environmental genetics laboratory of the Institute of Biology (University of Latvia) develops, tests, approves and offers consultations on biotesting methods for evaluating the impact of electromagnetic fields (EMF) on cells and model organisms including Comet assay, SMART tests and statistical analysis of growth and reproductive success parameters. The available flow-cytometry equipment allows to determine changes of cells fluorescence, light and electron microscopy is used to detect and evaluate changes of cytoplasmic structure of affected cells, influence of EMF on molecular level is studied using PCR, fragment analysis and sequencing of DNA. Web: <a href="http://www.lu.lv">www.lu.lv</a>
<b>4</b>	<b>VENTSPILS UNIVERSITY OF APPLIED SCIENCES</b>	Engineering Research Institute Ventspils International Radio Astronomy Centre (ERI VIRAC) of Ventspils University of Applied Sciences (VUAS) is a science education center specializing in the implementation of high-quality future research services in the field of radio astronomy, space technology, electronics, and signal processing. VIRAC laboratory provides Transceiver characteristics measurements of S-parameters, group delay, conversion loss, intermodulation, spurious, intercept point and

		<p>compression point according to EIA-364-108 standard.                  Web: <a href="http://www.venta.lv">www.venta.lv</a></p>
5	<b>APPLIED RESEARCH INSTITUTE FOR PROSPECTIVE TECHNOLOGIES</b>	<p>The Applied Research Institute for Prospective Technologies (Protech) is a private non-profit research institute established in 2005. Institute is focusing its activities on industry relevant research supporting SMEs and manufacturing industries in Lithuania and EU countries. Today, ProTech is recognized applied research center focusing its activities at green energy generation and application technologies, particularly, photovoltaics, energy efficient buildings and environment-friendly materials.                  Web: <a href="http://www.protechnology.lt">www.protechnology.lt</a></p>
6	<b>CENTRIA UNIVERSITY OF APPLIED SCIENCES LTD</b>	<p>Centria University of Applied Sciences is a multi-disciplinary, dynamic and international higher education institution on the Finnish west coast. Centria provides to industry analysis and testing services along with expert consultations. Testing services include compositional analysis of materials, thermal and mechanical behavior of materials and products, environmental testing, battery testing, and electromagnetic compatibility tests.                  Web: <a href="http://www.centria.fi">www.centria.fi</a></p>
7	<b>HOCHSCHULE WISMAR, UNIVERSITY OF APPLIED SCIENCES: TECHNOLOGY, BUSINESS AND DESIGN</b>	<p>The Competence Centre in Germany – Hochschule Wismar, University of Applied Sciences: Technology, Business and Design – is state owned and thus, well equipped for conducting many different tests in its laboratories. The German Competence Centre usually performs pre-tests, like tests for error identification in order to meet the requirements in the frame of subsequent product certifications. The core testing services embrace Calibration, characterization &amp; measurements optical systems, Characterization &amp; testing of electrical systems and offers consulting services for aspired product development and business development.                  Web: <a href="http://www.hs-wismar.de">www.hs-wismar.de</a></p>
8	<b>JSC MODERN E-TECHNOLOGIES</b>	<p>From the beginning of its activities in 2007 JSC Modern E-Technologies (MET) is focusing its activities onto knowledge intensive technologies development and commercialization. MET is a high-tech company with an aim to produce equipment and components for the energy, thermal storage, electronics and other technological innovation adoptive industries. Today, MET's main innovative products are solar modules for special applications, mainly for export.                  Web: <a href="http://www.met.lt">www.met.lt</a></p>

9	<b>CRYSTALSPACE</b>	CrystalSpace is Estonian SME and alumni of ESA BIC. CrystalSpace does RDI in small camera systems for satellites and fully immersible vacuum chamber cameras. Web: <a href="http://www.crystalspace.eu">www.crystalspace.eu</a>
10	<b>VIZULO</b>	VIZULO is an LED luminaire production and sales company specializing in territory, street, commercial, industrial and architectural LED lighting. Research and development of high-quality products are the priority of the company and the VIZULO engineering team has been formed as a result of great cooperation with Riga Technical University. Web: <a href="http://www.vizulo.com">www.vizulo.com</a>
11	<b>CRYOGENIC AND VACUUM SYSTEMS</b>	Company is specialized in design and development of cryogenic systems: cryogenic pumping stations, cryogenic liquefiers, storage and recirculation, in-house delivery / pipeline systems, mobile delivery / transportation systems, freeze drying systems, LNG small range liquefiers, storage, distribution and transportation systems. Web: <a href="http://www.cvsys.eu">www.cvsys.eu</a>

### Network Partner Members

	<b>Organization</b>	<b>Description</b>
12	<b>HYDROGEN AND INFORMATICS INSTITUTE OF APPLIED TECHNOLOGIES GmbH</b>	HIAT is a competent partner in the field of hydrogen, fuel cell technology and distributed energy storage technology which in cooperation with partners from industry answers directly to the needs of the market in the energy sector. Web: <a href="http://www.hiat.de">www.hiat.de</a>
13	<b>THOMAS JOHANN SEEBECK DEPARTMENT OF ELECTRONICS AT TALLINN UNIVERSITY OF TECHNOLOGY</b>	The aim of department is to develop high-level scientific and engineering activities in the fields of semiconductor and medicine electronics. Web: <a href="http://www.ttu.ee/institutes">www.ttu.ee/institutes</a>
14	<b>XAMK 3K-FACTORY OF ELECTRONICS</b>	South-Eastern Finland University of Applied Sciences, Electronics 3K factory provides comprehensive services for product development, manufacturing and testing. Web: <a href="http://www.xamk.fi">www.xamk.fi</a>
15	<b>TOPTESTER OY</b>	Toptester Oy is a company offering standardized or tailored reliability testing and engineering services for wide range of

		customers. Web: <a href="http://www.toptester.com">www.toptester.com</a>
<b>16</b>	<b>LATVIAN ELECTRONIC EQUIPMENT TESTING CENTRE</b>	Latvian Electronic Equipment Testing Centre promotes the electromagnetic compatibility compliance testing as solution to prevent the potential impact of product liability applied in cases of design and warning defects. Web: <a href="http://www.leitc.lv">www.leitc.lv</a>
<b>17</b>	<b>RTU LABORATORY OF ELECTROMECHATRONICS</b>	Electromechanical laboratory provides SMEs to simulate operation of electronic devices at different loads up to 200 kW power and simulation training in virtual reality cabin which is aimed at industry-wide research opportunities in areas such as electric drive and motion control, mechanics and kinematics, mechanical systems computer modelling and virtual reality development, as well as medicine and sports. Web: <a href="http://www.ieei.rtu.lv">www.ieei.rtu.lv</a>
<b>18</b>	<b>CENTER FOR PHYSICAL SCIENCES AND TECHNOLOGY</b>	Center for Physical Sciences and Technology is the largest scientific research institution carrying out a unique fundamental research and technological development works in scientific fields of laser technologies, optoelectronics, nuclear physics, organic chemistry, bio and nanotechnologies, electrochemical material science, functional materials, electronics, etc. in Lithuania. Web: <a href="http://www.ftmc.lt">www.ftmc.lt</a>
<b>19</b>	<b>TESTING CENTRE OF UNIVERSITY OF TARTU</b>	Testing Centre provides wide range of services based on the competence and scientific potential of University of Tartu for testing, measurements, calibrations, and chemical analyses (especially non-routine measurements and analyses), research and development, training and consulting. Web: <a href="http://www.katsekoda.ut.ee">www.katsekoda.ut.ee</a>
<b>20</b>	<b>METROSERT AS</b>	Metrosert is a National Metrology Institute of Estonia providing very wide range of Calibration, verification, testing, and certification services as well as trainings and consultations. Metrosert is the experienced and largest metrology infrastructure facility in Estonia since 1919. Web: <a href="http://www.metrosert.ee">www.metrosert.ee</a>
<b>21</b>	<b>VILNIUS GEDIMINAS TECHNICAL UNIVERSITY</b>	Vilnius Gediminas Technical University (VGTU) is a leading higher education institution situated in Vilnius, the capital of Lithuania, established in 1956, VGTU is one of the biggest



		research universities in Lithuania with a focus on technologies and engineering and strong emphasis on university-business cooperation. Web: <a href="http://www.vgtu.lt">www.vgtu.lt</a>
22	<b>TRELIC OY</b>	Trelic (Oy, Ltd) provides consultation and experimental work on electronics materials and reliability testing. Web: <a href="http://www.trelic.fi">www.trelic.fi</a>

## Cooperation Networks

	<b>Organization</b>	<b>Description</b>
23	<b>ECOLABNET</b>	The competences of the network include knowledge in additive manufacturing, bio-based materials, product-service system design, eco-branding, value chain assessment, business model development, legislation, customer insights, certifications and life cycle assessment. Web: <a href="http://www.ecolabnet.org">www.ecolabnet.org</a>

## Annex 2 TEST-4-SME Network Service database

Please visit the electronic database of TEST-4-SME Network services here

<http://www.testelectronics.eu/database-of-services/>

## Annex 3 List of potential funding sources (2020)

### Support to SMEs

1. Erasmus SECTOR SKILLS ALLIANCES – p. 144 in the guide
2. Cluster facilitated projects for new industrial value chains (IA; Deadline: 02 April 2020 17:00:00 Brussels time; 2nd stage Deadline: 08 September 2020 17:00:00 Brussels time) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/innosup-01-2018-2020;freeTextSearchKeyword=;typeCodes=1;statusCodes=31094501,31094502;programCode=H2020;programDivisionCode=31047847,31047848,31047884,31047887,31047856,31047862,31047874,31047879,31047938,31047956,31047972,31048026,31048035;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
3. European SME innovation Associate – pilot (CSA-LSP Coordination and support action Lump sum, 15 January 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/innosup-02-2019-2020;freeTextSearchKeyword=;typeCodes=1;statusCodes=31094501,31094502;programCode=H2020;programDivisionCode=31047847,31047848,31047884,31047887,31047856,31047862,31047874,31047879,31047938,31047956,31047972,31048026,31048035;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

4. Pan-European advanced manufacturing assistance and training for SMEs (INNOSUP-08-2020)<sup>1</sup>  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/innosup-08-2020;freeTextSearchKeyword=SME%20support;typeCodes=1;statusCodes=31094501,31094502;programCode=H2020;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=submissionStatus;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
5. Sustainable solid waste management grants - Environmental Research and Education Foundation, US  
<https://www.researchprofessional.com/funding/opportunity/1124085/>

Circular Economy, Recycling, Materials (RTU, Protech, Centria, Wismar)

6. Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes (IA, Deadline: 05 February 2020 17:00:00 Brussels time; 2nd stage, Deadline: 03 September 2020 17:00:00 Brussels time) -  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-sc5-07-2020;freeTextSearchKeyword=batteries;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>. Applying a circular economy approach throughout the entire value chain, actions for this topic should address only one of the following sub-topics: b) Recycling of raw materials from end-of-life products: Actions should develop and demonstrate novel and environmentally sound solutions for a higher recycling and recovery of secondary raw materials from end-of-life products such as waste electrical and electronic equipment (WEEE), batteries, wood-based panels, multi-material paper packaging, end-of-life tyres, etc. These products can contain different minerals, metals, wood and wood-fiber, rubber, etc. (including critical raw materials and other technology metals).
7. Develop, implement and assess a circular economy oriented product information management system for complex products from cradle to cradle (IA, Deadline: 05 February 2020 17:00:00 Brussels time, 2nd stage Deadline: 03 September 2020 17:00:00 Brussels time) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-sc5-31-2020;freeTextSearchKeyword=circular%20economy%20;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaC>

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<sup>1</sup> <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/innosup-08-2020;freeTextSearchKeyword=SME%20support;typeCodes=1;statusCodes=31094501,31094502;programCode=H2020;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=submissionStatus;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

- [ode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState](#)
8. Improving the sorting, separation and recycling of composite and multi-layer materials (RIA, Deadline: 13 February 2020 17:00:00 Brussels time, 2nd stage Deadline: 03 September 2020 17:00:00 Brussels time) -  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-sc5-24-2020;freeTextSearchKeyword=;typeCodes=1;statusCodes=31094501,31094502;programCode=H2020;programDivisionCode=31047847,31047848,31047884,31047887,31047856,31047862,31047874,31047879,31047938,31047956,31047972,31048026,31048035;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
  9. Materials life cycle sustainability analysis (RIA, 5 February 2020) -  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-nmbp-42-2020;freeTextSearchKeyword=materials;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
  10. Understanding the transition to a circular economy and its implications on the environment, economy and society (RIA, Deadline: 13 February 2020 17:00:00 Brussels time; 2nd stage Deadline: 03 September 2020 17:00:00 Brussels time) -  
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ce-sc5-25-2020;freeTextSearchKeyword=sme;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

#### Training of lab staff

11. Erasmus Strategic Partnerships [https://ec.europa.eu/programmes/erasmus-plus/opportunities/strategic-partnerships-field-education-training-and-youth\\_en](https://ec.europa.eu/programmes/erasmus-plus/opportunities/strategic-partnerships-field-education-training-and-youth_en)
12. Erasmus Learning Mobility of Individuals (MOBILITY PROJECT FOR VET LEARNERS AND STAFF) –  
[https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/three-key-actions/key-action-1/mobility-vet-staff\\_en](https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/three-key-actions/key-action-1/mobility-vet-staff_en)

#### Testing

13. Towards harmonized characterization protocols in NMBP (RIA, Deadline: 12 December 2019 17:00:00 Brussels time; 2nd stage Deadline: 14 May 2020 17:00:00 Brussels time) - <https://ec.europa.eu/info/funding->

[tenders/opportunities/portal/screen/opportunities/topic-details/nmbp-35-2020;freeTextSearchKeyword=testing;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState](https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/nmbp-35-2020;freeTextSearchKeyword=testing;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState)

#### PV Technologies (photovoltaics; ProTech)

1. Increase performance and reliability of photovoltaic plants (Follow up in 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-33-2020;freeTextSearchKeyword=Photovoltaic%20;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
2. Next generation of thin-film photovoltaic technologies (Follow up in 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-9-2020;freeTextSearchKeyword=Photovoltaic%20;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

#### Batteries (Centria)

1. Hybridisation of battery systems for stationary energy storage (RIA, 21 April 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-bat-9-2020;freeTextSearchKeyword=batteries;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
2. Next-generation batteries for stationary energy storage (RIA, 21 April 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-bat-8-2020;freeTextSearchKeyword=batteries;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
3. Coordinate and support the large scale research initiative on Future Battery Technologies (CSA, 16 January 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-bat-15-2020;freeTextSearchKeyword=batteries;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCu>

- [ttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState](#)
4. Sensing functionalities for smart battery cell chemistries (RIA, 16 January 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-bat-13-2020;freeTextSearchKeyword=batteries;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>
  5. Novel methodologies for autonomous discovery of advanced battery chemistries (RIA, 16 January 2020) - <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-bat-12-2020;freeTextSearchKeyword=batteries;typeCodes=0,1;statusCodes=31094501,31094502;programCode=null;programDivisionCode=null;focusAreaCode=null;crossCuttingPriorityCode=null;callCode=Default;sortQuery=openingDate;orderBy=asc;onlyTenders=false;topicListKey=topicSearchTablePageState>

Annex 4 Funding proposals submitted under the TEST-4-SME Network.

1. **ECOSME**  
Enhance the Competitiveness of SMEs,

Interreg Baltic Sea Programme extension call

The ECOSME project is based upon our direct experiences within the TEST-4-SME project, in which we formed a network of testing centers

to support BSR electronics SMEs in the testing, characterization and conformity assessment of electronic products.

Lack of capacity can severely limit BSR electric SMEs ability to develop new products, especially genuinely innovative ones, and thus can hinder their competitiveness within the European and global markets. This is especially true within the electronics field, which is quite fast moving, with rapid changes in the technology. Due to their small size and need to respond to a fast-changing environment, BSR electronics firms must operate as efficiently as possible, especially in terms of innovative product development.

Through ECOSME activities we shall enhance competitiveness of SMEs in Baltic Sea region through development of methodology for improving innovation capacity of electronics SMEs, multiply this knowledge in innovation bootcamps for 101 companies, create virtual consultation room and webinars for long-lasting effect of innovation support activities among SMEs within nine-month period in 2020-2021.

## 2. **TRAIN-ECO**

TRAINing for professionals and entrepreneurs on ECO-innovation in electronics product development

Erasmus+ KA202-806D92F6 **Amount funded 196 310 €.**

The primary goal of the TRAIN-ECO project is to develop training materials on eco-innovation for electronics professionals and entrepreneurs from SMEs and start-ups. SMEs and start-ups play an important role in the EU economy and need to transition to sustainable business models in order to support EU's efforts to build a green economy. For example, waste from the electronics industry, known as e-waste, is an increasingly large problem for the EU and the world. However, currently SME and start-up staff lack the training and skills necessary to develop innovative and eco-sustainable electronics products that comply with EU regulations. To address this, TRAIN-ECO will:

- Develop training materials on eco-innovation that leads to sustainable development, and quality management in electronics product development
- Develop training materials on EU environmental and safety standards
- Design a MOOC that will comprehensively cover the above topics
- Create shorter e-modules on these topics and an open repository of project materials
- Create guidelines for VET providers on how to incorporate our learning materials into flexible continuing VET education programs and courses





## Annex 5 The potential partner networks for TEST-4-SME Network.

1. Baltic Science Network (BSN) is a forum for higher education, science and research cooperation in the Baltic Sea Region. BSN is a policy network gathering relevant transnational, national and regional policy actors from the Baltic Sea Region countries. The Network is a springboard for targeted multilateral activities in the frame of research and innovation excellence, mobility of scientists and expanded participation. The Baltic Science Network is a flagship of the EU Strategy for the Baltic Sea Region under the Policy Area Education, Research and Employability. It is also one of two cornerstones of the Science, Research and Innovation Agenda of the Council of the Baltic Sea States.

Link: <https://www.baltic-science.org/>

2. Baltic TRAM builds on the findings of Science Link, an initiative which received EU project funding 2012-2014. Science Link is currently operated as a network. The aim is to create awareness of the possibilities offered at research facilities in the region and to show how R&D at these sites can contribute to innovation within the European industry.

Link: [https://www.baltic-tram.eu/index\\_eng.html](https://www.baltic-tram.eu/index_eng.html)

3. Ecolabnet aims to develop a network for RDIs to offer their high-level expertise, infrastructures and access to international systems to industrial SMEs. The network aims to develop skills for RDIs to engage in active dialogue and collaboration with SMEs.

Link: <https://ecolabnet.org/>

4. ADAPTER is a network of Estonian universities, research and development organizations, providing a quick and reliable link for companies and organizations to the research and development community.

ADAPTER is a one-stop-shop that enables to present an inquiry to Estonian research and development institutions, search the database of all the services on offer by those facilities. The network platform allows to see what kind of support mechanisms there are to help companies engage in research and development cooperation.

Link: <https://adapter.ee/en/>

5. The Baltic Sea Underground Innovation Network (BSUIN) project aims to make the underground laboratories in the Baltic Sea region more accessible for innovation, business development and science by improving the information about the underground laboratories, the operation, user experiences and safety. The BSUIN consortium has 14 members from eight Baltic Sea countries.

Link: <http://bsuin.eu/>