



Strategic areas of specialisation and primary scientific fields to be developed in the implementation of scientific activities of Latvia University of Life Sciences and Technologies



Latvia University of Life Sciences and Technologies

INTRODUCTION

According to the 2023–2027 Development Strategy of Latvia University of Life Sciences and Technologies (LBTU), LBTU is a science university – a leader in the creation of innovations related to the bioeconomy and related industries and in the sustainable use of natural resources in the Baltic Sea region, contributing to the introduction of innovations in the national economy to promote the balanced development of Latvia's regions and improvement of the quality of life of society.

LBTU sets three strategic goals – research excellence and innovation capacity, high-quality studies and excellence in university management, the achievement of which is ensured by three Action Programmes: Research Programme, Study and Lifelong Learning Programme and Management Programme. The Research Programme is based on LBTU's strategic specialisation, vision, mission, assessment of the current situation, future opportunities and challenges. The medium-term goal of the Research Programme is the successful integration of LBTU into the international ecosystem of universities and scientific institutions, excellence in research, ensuring the sustainability of the research environment, and transfer of knowledge and technologies.

The research directions have been selected in accordance with the current trends in the world and in Latvia, including the **European Green Deal**. This is the new European Union (EU) growth strategy, which aims to put the EU on a path of transition towards a climate-neutral, just and prosperous society with a modern, resource-efficient and competitive economy. The EU is committed to achieving climate neutrality by 2050 and has defined eight policy initiatives to achieve this goal, including the Horizon Europe research and innovation programme.

As per the Law on Higher Education Institutions, a science university's performance is assessed based on internationally recognised standards. These standards require the university to either produce at least 1,000 indexed scientific publications in the Web of Science and Scopus databases over five years or achieve a minimum score of four in the international evaluation of scientific institutions' performance in strategic specialisation areas. Strategic specialisation refers to the academic and scientific fields designated by the university's founder, such as natural sciences, engineering and technology, medical and health sciences, agricultural, forestry and veterinary sciences, social sciences, humanities, and arts.

Strategic specialisation is the foundation for the university's strategic development planning, determining the key scientific fields and study areas to be prioritised for growth.

The university's founder defines its strategic specialisation to attain internationally recognised excellence and ensure alignment with societal needs and requirements in the chosen fields of study and research. To ensure the development of interdisciplinarity and multidisciplinary research, science universities should identify at least three areas of specialisation. To fulfil its objectives, a science university must conduct internationally recognised scientific activities in at least three discipline groups and offer study programmes in at least three fields of study.

According to the strategic specialisation of LBTU (biosciences, engineering and social sciences), research directions of each specialisation area have been defined (Fig. 1) and they are in line with the current EU-wide policy planning documents, the Sustainable Development Strategy of Latvia until 2030, the Latvian Bioeconomy Strategy 2030, the Guidelines for Science, Technology Development, and Innovation 2021–2027, the Smart Specialisation Strategy and the LBTU Strategy, and contribute to the achievement of the goals and satisfaction of the needs of society mentioned in these documents.

THE EUROPEAN GREEN DEAL

Horizon Europe

Cluster 6:
Food,
bioeconomy,
natural resources,
agriculture, and
environment

Cluster 5:
Climate, energy
and mobility

Cluster 1:
Health

RIS3: Latvian Smart Specialisation Strategy

Knowledge-intensive
bioeconomy

Smart materials,
technologies and
engineering systems

Information and
communication
technologies

Smart energy

Biomedicine, medical
technology,
biopharmaceuticals and
biotechnology

LBTU strategic specialisation

Biosciences

- Implementation of the "One Health" concept and research on species interactions in the context of climate change.
- Preservation of biodiversity in agricultural and forest biocoenosis, ecosystem protection and services.
- Research of resources essential for the bioeconomy (land, soil, water) to ensure sustainable use and reduce pollution.
- Development and adaptation of technologies for the extraction of high-value agricultural and forest products, as well as in veterinary medicine.

Engineering

- Smart materials and products.
- Technologies for sustainable development.
- Innovative solutions for the implementation of circular economy principles.

Social sciences

- Research on the strategic impact of knowledge-intensive bioeconomy.
- Exploring the possibilities of sustainable and smart territorial development.
- Competitiveness of environmentally responsible business and the study of societal development interactions.

Fig. 1 LBTU's strategic specialisation area in the context of policy planning documents.

The LBTU Research Programme focuses on two main priorities, each with its own set of specific tasks.

1. **Research excellence in the international ecosystem**, through fostering international cooperation in strategic areas of specialisation; promoting scientific publications in high-impact journals; enhancing competitiveness in attracting researchers; and attracting funding for strategic research areas.

2. **Knowledge and technology transfer**, providing for the promotion of intellectual property commercialisation in the areas of LBTU strategic specialisation, as well as the development of innovation and entrepreneurial skills of LBTU university staff.

The research directions of LBTU strategic specialisation areas are aimed at the achievement of priorities and the successful completion of the set tasks.

1. Strategic specialisation area: BIOSCIENCES

Research motto of the specialisation:

Sustainable and climate-smart research and management of natural resources.

Research objective: study of natural processes and resources, knowledge transfer for sustainable economic and technological development to improve public safety, quality of life and animal health.

Abstract. Biosciences research focuses on four key areas: applying the “One Health” concept, which includes studying interactions among animals, plants and microorganisms; exploring and preserving biodiversity within agricultural and forest ecosystems; examining and managing soil and water resources; and advancing modern technologies, such as digitalisation and smart solutions, to enhance the quality of agricultural and forest products, as well as veterinary medicine. Fundamental and applied research is carried out at all LBTU faculties and institutes, as well as in cooperation with external partners.

Research directions:

1. Implementation of the “One Health” concept and research on species interactions in the context of climate change;
2. Preservation of biological diversity in agricultural and forest biocenosis, ecosystem protection and services;
3. Research of resources essential for the bioeconomy (land, soil, water) to ensure sustainable use and reduce pollution;
4. Development and adaptation of technologies for the extraction of high-value agricultural and forest products, as well as in veterinary medicine (Table 1).

Research output indicators: publications, doctoral theses, monographs, participation in the development of regulatory and planning documents, recommendations, participation in industry organisations and advisory boards, educational activities.

Table 1. Research directions of strategic specialisation of LBTU agricultural, forest and veterinary science.

Implementation of the “One Health” concept and research on species interactions in the context of climate change.

1. **Research on pathogenic and non-pathogenic fungi, bacteria and viruses.**
Identification of zoonoses, animal and plant pathogens, genetic and biological diversity of micro-organisms, disease ecology, epidemiology, and control. Micro-organisms beneficial to plants and animals and interactions between different species of micro- and macro-organisms. Research on *Bacterium Radicola* (*Rhizobium spp.*, etc.) and their strains, evaluation of their efficacy and compatibility with host plants (peas, beans, legumes, etc.).
2. **Research on invertebrates useful and harmful in agriculture, forestry and veterinary medicine.**
Phenology, development cycles, factors affecting development, diversity, control and eradication of productive and parasitic insects and other invertebrates. Studies on changes in insect communities – pollinators and other beneficial invertebrates, as well as the value of beekeeping products in relation to agricultural production, plant protection, and bee diseases.
3. **Research of resistance in harmful organisms (pathogens, invertebrates and weeds) and developing recommendations to reduce risk.**
4. **Studies on morphology and health, food and feed safety of productive and non-productive animals.**

<p>5. Research into comparative medicine, diagnostics and innovative treatments.</p> <p>LBTU faculties and departments involved: VMF, LF, MF, Agrihorts, Institute of Agriculture, PTF, BZL, ITF</p> <p>External cooperation partners: AREI, DI, Silava, BMC, BIOR, RSU, OSI, RSU, Faculty of Biology, University of Daugavpils, Estonian University of Life Sciences, Lithuanian Research Centre for Agriculture and Forestry, Vytautas Magnus University, University of Helsinki</p>
<p>Preservation of biological diversity in agricultural and forest biocoenosis, ecosystem protection and services.</p>
<p>1. Research and use of plant genetic resources of economic importance. Research, conservation and applications of genetic resources of perennial grasses, forage plants, aromatic, medicinal, and other plants. Development of grass varieties tolerant to biotic and abiotic stresses, suitable for different uses in Latvia.</p> <p>2. Biology, genetic diversity and distribution of weeds in relation to agroecological factors.</p> <p>3. Conserving and enhancing the biodiversity of livestock species. The health of the local conserved animal species, the composition and quality of the resulting products and their suitability for niche products. Genomic studies of farm animals for the development of productive traits.</p> <p>4. Biodiversity of forest and swamp ecosystems. Including rare, protected and invasive species, their changes, adaptation and risk factors in the context of climate change. Anthropogenic impacts on forest biodiversity in forest habitats and green infrastructure planning options.</p> <p>5. Innovative solutions to increase the diversity and resilience of forest ecosystems.</p> <p>6. Diversification of forest ecosystem services and products (nature tourism, third-generation biofuels, game farming, etc.).</p> <p>7. Urban agriculture and forestry and tree farming.</p>
<p>LBTU faculties and departments involved: VMF, LF, MF, Agrihorts, Institute of Agriculture, ITF, BZL.</p> <p>External cooperation partners: AREI, DI, Silava, BIOR, BMC, LU, Daugavpils University, Nature Foundation, Estonian University of Life Sciences, Lithuanian Research Centre for Agriculture and Forestry, Vitautas Magnus University, Lithuanian University of Health Sciences, University of Helsinki, Norwegian University of Life Sciences.</p>
<p>Research of resources essential for the bioeconomy (land, soil, water) to ensure sustainable use and reduce pollution.</p>
<p>1. The role of soil and animals in the ecosystem and in the biochemical cycle.</p> <p>2. The diversity of Latvian soils, the use of innovative methods to study them, and soil conservation.</p> <p>3. Changes in soil properties and nutrient cycling in agriculture and forestry depending on the environmental conditions and management system.</p> <p>4. Groundwater regime in agricultural, forest and swamp ecosystems.</p> <p>5. Reclamation of degraded areas.</p>
<p>LBTU faculties and departments involved: LF, MF, Agrihorts, Institute of Agriculture, ITF, TF, VBF, BZL, MUR.</p> <p>External cooperation partners: AREI, DI, Silava, Faculty of Geography and Earth Sciences, University of Life Sciences of Estonia, University of Tartu, Lithuanian Research Centre for Agriculture</p>

and Forestry, Vytautas Magnus University, Warsaw University of Life Sciences.

Development and adaptation of technologies for the extraction of high-value agricultural and forest products, as well as in veterinary medicine.

- 1. Development of environmentally friendly, sustainable technologies for crop and horticultural production.**
Yield and quality development of wheat, oilseed rape, legumes, grasses, horticultural crops and other crops in different farming systems. Developing new production technologies and exploring the possibilities of growing less common crops, including medicinal and aromatic plants.
- 2. Studies on the diversity of plant biomass use.**
Opportunities and risks of using local renewable resources.
- 3. Exploring the use of smart technologies in agriculture, forestry and veterinary medicine.**
Testing, development and application of decision support systems to forecast and manage plant and animal diseases, as well as harmful invertebrates, in integrated and organic farming. Application of smart technologies for the early detection of plant stress, and the use of sensors and information technologies to monitor and study bee colonies. Application of smart technologies in animal husbandry and veterinary medicine. Environmentally friendly and smart technology-based solutions for logging. Use of smart technologies in forestry planning and control, forest protection.
- 4. Agroforestry development.**
Research on innovative technologies for growing woody plants and crops. Risk factors for the management of tree plantations and plantation forests on unused agricultural land.
- 5. Welfare, adaptation processes, behaviour, and health of different animal species.**
The impact of housing and behaviour on health, productivity, product safety and the environment in different farming systems. Study of morphofunctional processes in non-traditional animal species and their impact on the quantity and quality of the products they yield. Development and adaptation of new technologies for the preparation and feeding of feed or feed additives.

LBTU faculties and departments involved: VMF, LF, MF, AgriHORTS, Institute of Agriculture, ITF, TF, VBF, ESAF, PTF, BZL, Bulduri DV

External cooperation partners: AREI, DI, Silava, BIOR, CI, RTU, Latvian Academy of Agriculture and Forestry Sciences, Estonian University of Life Sciences, Lithuanian Research Centre for Agriculture and Forestry, Vytautas Magnus University, University of Helsinki, Norwegian University of Life Sciences, Nordic Association of Agricultural Sciences.

2. Strategic specialisation area: ENGINEERING

Research motto of the specialisation:

Technologies and innovations for sustainable and climate-neutral resource management.

Research objective: study and transfer of knowledge based on engineering research on materials, products, technologies, and innovations for sustainable economic development and improvement of the quality of life of society and the environment.

Abstract. LBTU conducts engineering research across various fields, including food and beverage technology, environmental engineering and energy, construction and transport engineering, electrical engineering, electronics, information and communication technologies, materials science, mechanical engineering, and related sub-disciplines. LBTU's interdisciplinary research, guided by the principles of circular economy and sustainable development, focuses on integrating the management of natural and human-made resources across agriculture, forestry, food production, construction, energy, and transport. LBTU scientists develop innovative materials, products and technologies that align with modern environmental standards, climate neutrality goals, and production and recycling requirements.

Research directions:

1. Smart materials and products.
2. Technologies for sustainable development.
3. Innovative solutions for the implementation of circular economy principles (Table 2).

Research output indicators: publications, doctoral theses, monographs, participation in the development of regulatory and planning documents, recommendations, participation in industry organisations and advisory boards, educational activities.

Table 2. Research directions of LBTU's strategic specialisation in engineering and technology.

Smart materials and products.	
1.	Utilising by-products and residues from agriculture, forestry, and manufacturing to generate new products and energy. Use of agricultural and industrial residues for new products, energy production. Application of agricultural by-products for the production of energy-reduced composites and construction products, and their use as raw materials for 3D printing machines.
2.	Quality and safety aspects of food raw materials and products in the production process and in the development of new products. Quality and safety aspects of organic raw materials and products. New products for special dietary purposes. Biologically active substances in raw materials and products, their functionality. Solutions for chemical and microbial risk management. Nutritional assessment of products in a digestive simulation system and clinical studies. Prospects for Latvian traditional products under the impact of globalisation.
3.	Development and production of new and innovative building and composite materials from local resources. New wood materials, composite materials and their production possibilities from local resources.

Innovative options for the use of wood and woody biomass. Sustainable construction, development of new innovative building materials and products and research into their properties. New geosynthetic materials for the construction of land amelioration systems. Applicability of portable and modular systems in industrial wood production from local resources.

4. Evaluation of raw material and product properties, optimisation and application of technological parameters and processes.

Evaluation of the impact of the increased use of wood as a material in the national economy. Evaluation of the influence of different raw material properties and optimisation of their technological characteristics. Complex applications of wood (and other biomass). Research on wood materials and wood construction product technologies, acoustic properties. Determination of the reaction to fire of wood and fire scenarios and systems to be applied. Study of technological processes and operational properties of wood and material processing. Potential for green chemistry and chemical recycling in wood and other products. Reducing energy intensity in wood processing technologies and the specific consumption of materials in wood products.

LBTU faculties and departments involved: MF, VBF, ITF, TF, LF, PTF, ESAF, TEPEK **External cooperation partners:** DI, AREI, Vidzeme University of Applied Sciences, MeKA, LU, RTU, BIOR, OSI, DU BOIS Kaunas University of Technology, Tallinn University of Technology, Poznan University of Technology, Swedish University of Agricultural Sciences, Norwegian University of Life Sciences, Center of Food and Fermentation Technology (Tallinn). French School of Wood and Biobased Materials.

Technologies for sustainable development.

1. Development and management of precision and smart technologies for sustainable agricultural and forestry production, urban development.

Development of precision beekeeping solutions. Development of a precision horticultural system for sustainable crop production. Application of GIS, remote sensing and sensor solutions to manage field parameters. Precision farming and forestry systems, smart technologies and robots. Development and applicability of smart technologies in industrial wood production and operation. Development of smart solutions for urban development and sustainability. Studies on the improvement and organisation of the collection and disposal of stormwater maximum flowrates in Latvian cities.

2. Design and development of systems and software to support precision and smart technologies.

Software solution design and architecture development. Software quality assessment and assurance methods. Big data analysis and processing systems. 3D design solutions. Digitalisation of construction process management. Research and application of visual programming in construction. Development of decision support systems. Modelling and optimisation of dynamic processes. Audiovisual information processing and feature recognition technologies. Applications of artificial intelligence.

3. Sustainable technological solutions for the production of value-added food products.

Biotechnological solutions for value-added product development. New technologies for the preservation of bioactive compounds in food. Solutions to microbiological and chemical contamination of food through the application of new processing technologies. Optimisation of extrusion processes for new product development.

4. Environmental technologies to reduce and prevent air, water and soil pollution.

Reduction of water, air and soil pollution in urban areas. Using phytoremediation to revitalise degraded areas. Development of technology solutions for artificial wetlands. Development of environmentally friendly land amelioration solutions. Green technologies for improving the

microclimate of buildings.

LBTU faculties and departments involved: TF, ITF, Agrihorts, MF, PTF, VBF, LF, TEPEK, Institute of Agriculture

External cooperation partners (including foreign partners): BIOR, DI, AREI, LU, Kaunas University of Technology, Norwegian University of Life Sciences, Center of Food and Fermentation Technology (Tallinn).

Innovative solutions for the implementation of circular economy principles.

- 1. Innovative solutions for the mitigation, prevention of and adaptation to climate change.**
Choosing and planning water management measures to improve water quality in drained agricultural land. Identification of GHG emissions and causal analysis; measures to reduce GHG emissions. Measures to reduce ammonia and other air pollutants. Reducing CO₂ emissions in transport and using alternative fuels in mobile machinery. Green and ecological construction and the impact of climate change on the technical solutions and sustainability of buildings. Waste management based on principles of circular economy, recycling of building materials and structures.
- 2. Research and modelling of water and substance cycling.**
Modelling of the environmental and meteorological parameters. Assessing the impact of agricultural activities on the quality and quantity of surface and groundwater. Modelling of the nitrogen cycle. Modelling of hydrological and hydrochemical processes. Research and modelling of urban air quality. Ecosystem services in inland water bodies. Optimisation of structural solutions and operational parameters of small and medium-sized hydraulic structures, including dams and weirs.
- 3. Solutions for renewable energy extraction, conversion and use in agriculture and forestry.**
Production and conversion of renewable energy. Solutions for the use of renewable energy in agriculture and forestry. Using wastewater for renewable energy production.
- 4. Remote sensing, geodesy and geoinformatics solutions for sustainable land management and landscape planning.**
Monitoring and accuracy assessment of geodetic reference systems. Geodetic substantiation for long distances of a linear civil engineering object. Evaluation of the accuracy of the 3D land surface model. Use of geographic information systems for spatial planning. Land (real estate) management, geospatial data issues in the construction and operation of electricity grids. Geo-informatics solutions for the spatial administration of land (real estate). Landscape planning based on engineering and innovation, use of digital tools and remote sensing technologies.
- 5. Human-computer interaction aspects for ensuring sustainability.**
Interdisciplinary software solutions and their quality. Human-machine interfaces for sustainable software development. Virtual and augmented reality applications in an interdisciplinary context.
- 6. Food production and packaging based on the principles of circular economy.**
Extraction of bioactive compounds from food by-products. Valorisation of food by-products in new products. Optimisation of packaging, ensuring the preservation and extension of the shelf-life of food products in line with the European Green Deal. Alternatives to animal products in the context of environmental sustainability solutions.
- 7. Development of smart cities and mobility solutions.**
Monitoring of traffic flows and applying modelling to study road congestion. Sustainable multimodal mobility solutions.
- 8. Energy efficiency and sustainability solutions for buildings.**
Systems for ensuring microclimate in buildings. Optimisation of energy consumption in buildings and opportunities for improving the energy efficiency of heating, ventilation and air-conditioning systems. Opportunities for implementing climate-neutral buildings and infrastructure in Latvian

climate conditions. Solutions for the safety and performance of building structures under long-term loading.

LBTU faculties and departments involved: TF, MF, VBF, ITF, PTF, LF, TEPEK.

External cooperation partners (including foreign partners): AREI, DI, Ministry of Agriculture, Ministry of Environmental Protection and Regional Development, VSIA Latvijas Vides, ģeoloģijas un meteoroloģijas centrs (Latvian Environmental, Geological and Meteorological Centre), LVMI Silava, VSIA Zemkopības ministrijas nekustamie īpašumi (Real Estate of the Ministry of Agriculture), Association Zemnieku Saeima, Czech University of Life Sciences, Aleksandra Stulgisnka University, Estonian University of Life Sciences, Swedish University of Agricultural Sciences, Finnish Environmental Institute, Norwegian Bioeconomy Research Institute, Iowa State University.

3. Strategic specialisation area: SOCIAL SCIENCES

Research motto of the specialisation:

Research and administration for sustainable bio-economy and smart spatial development.

Research objective: to develop an integrated approach to knowledge-intensive bio-economies, smart spatial development and business and societal sustainability, including economic transformation processes, knowledge transfer and innovation-based research to balance economic, climate and societal interests.

Abstract. Multidisciplinary approaches are crucial in social science research, integrating various key aspects such as environmental and climate change issues, factors driving the shift to a climate-neutral economy, and the promotion of green and digital transformation in EU industries. The research also focuses on managing climate-related risks while ensuring the competitiveness of environmentally responsible businesses and fostering a socially sustainable and inclusive transition.

The social sciences focus is carried out through close collaboration with other LBTU research directions, working in an integrated manner with scientists from various LBTU research directions, as well as with Latvian and international research institutions, policymakers, entrepreneurs, and non-governmental organisations. LBTU Social Sciences research groups are established contributors to the European scientific community, actively participating in international projects and expert working groups, and facilitating the transfer of knowledge to various economic sectors.

Research directions:

1. Study of the strategic development and socio-economic impact of a knowledge-intensive bioeconomy.
2. Exploring the possibilities of sustainable and smart territorial development.
3. Competitiveness of environmentally responsible business and the study of societal development interactions (Table 3).

Research output indicators: publications, theses, monographs, models, recommendations, and papers, participation in organisations and events.

Table 3. Research directions of LBTU's strategic specialisation in social science.

Study of the strategic development and socio-economic impact of a knowledge-intensive bioeconomy.

1. **Improvement of bioeconomy competitiveness and development modelling.**
Analysis and promotion of bioeconomy innovations (digitalisation, robotics, etc.), knowledge management. Development of bioeconomy assessment tools at the national and local level. Modelling the development of the bioeconomy and its individual sectors. Sustainability policy analysis, architecture of a framework of support measures in bioeconomy sectors.
2. **Economic research on the development of sustainable bioeconomy industries.**
Resilience and development of local food supply chains. Opportunities for climate-neutral agriculture and forestry. Assessing the socio-economic impacts of GHG and ammonia emission reduction potential of agriculture. Analysis of the negative environmental side-effects of primary production and exploration of options for internalisation. Research of the impact of measures to promote the circular economy in bio-based industries.
3. **Research of socio-economically sound management of bio-economy resources.**
Economically sound and sustainable use of bioresources. Socio-economic analysis of bioenergy use. Analysis of options for the more efficient management of land as a resource for bioeconomy production at the national level. Analysis of agricultural land transactions by the Latvian Land Fund.

LBTU faculties and departments involved: ESAF, TF, LF, VMF, PTF, VBF Department of Land Management and Geodesy

External cooperation partners (including foreign partners): AREI, DI, LVMI Silava, RTU Institute of Environmental Protection and Heat Systems, RSU Faculty of European Studies, AS Latvijas valsts meži (Latvian State Forests), Latvian Biogas Association, Latvian Peat Association, Zemgale Planning Region Administration, Vidzeme Planning Region Administration. Estonian University of Life Sciences, Vytautas Magnus University, Wageningen University, Finnish Natural Resources Institute, Norwegian Institute for Bioeconomy Research, Scotland's Rural College, Norwegian University of Life Sciences.

Exploring the possibilities of sustainable and smart territorial development.

1. **Exploring the drivers, barriers and solutions for the development of territories.**
Exploring the smart specialisation of territories. Opportunities for innovative capacity building in the context of regional socio-economic development. Research of the development of urban agriculture. Rural-urban interactions. Exploring the benefits of administrative-territorial reform for sustainable territorial development. Real estate market and property tax policy in regions and municipalities. Analysis of the problems of cadastral valuation of real estate.
2. **Spatial identity studies of territories and solutions adapted to climate change.**
Landscapes of national and local importance, cultural space at the national level, highlighting spatial identity. Blue-green infrastructure in landscape planning and management. Landscape as a living space and an important resource for the physical and mental health of the public. Spatial elements and identity of the rural landscape (roads, forests, water bodies, settlements).

LBTU faculties and departments involved: ESAF, VBF Department of Landscape Architecture and Planning, VBF Department of Land Management and Geodesy

External cooperation partners (including foreign partners): AREI, DI, LVMI Silava, Faculty of Geography and Earth Sciences, VA Social, Economic and Humanities Research Institute, Latvian Association of Landscape Architects, Zemgale Planning Region, Vidzeme Planning Region, Norwegian University of Life Sciences, Bioeconomy Research Institute, Estonian University of Life Sciences.

Competitiveness of environmentally responsible business and the study of societal development interactions.

- 1. Research of business models in the context of sustainable economic management.**
Efficient use of business resources and business activity in the context of the circular economy. Research of agribusiness and innovation systems to improve the competitiveness of the agricultural sector. Research of social entrepreneurship opportunities for the sustainable development of society and rural areas.
- 2. Research of social processes, social innovation and smart solutions in rural communities.**
Evaluation of local community-led development strategies. Research on changes in attitudes and habits of the public, business and certain social groups (youth, NGOs, entrepreneurs, educational institutions) as a result of climate change and environmental policy impacts (circular economy, climate change, zero waste, implementation of Strategy R, etc.). Analysis of social and cultural sustainability opportunities. Promoting leadership and civic engagement in communities.
- 3. Knowledge management development solutions for innovation.**
Education and career management for personal development and social sustainability in a knowledge society. Research of digital transformation – in the context of business, society, sustainable development, including platform society research.

LBTU faculties and departments involved: ESAF, TF IMI, TEPEK

External cooperation partners (including foreign partners): AREI, DI, LU, LOSP, Latvian Federation of Food Companies, Latvian Association of Small and Medium Enterprises, Latvian Food Bioeconomy Cluster, Zemgale Planning Region Administration, Vidzeme Planning Region Administration. University of Helsinki, Estonian University of Life Sciences, Estonian University of Technology, Vytautas Magnus University, Tampere University, University of Tartu, European Network for Innovation in Career Management and Guidance, International Association for Vocational Education and Management.

ABBREVIATIONS USED

LBTU departments:

Agrihorti – Institute of Plant Protection Research Agrihorti
AREI – LBTU APP Institute of Agricultural Resources and Economics
Bulduri DV – LBTU SIA Bulduri Horticultural Secondary School
BZL – Biotechnology Research Laboratory
DI – LBTU APP Institute of Horticulture
ESAF – Faculty of Economics and Social Development
IMI – Institute for Education and Home Economics
FIT – Faculty of Information Technologies
LF – Faculty of Agriculture
MF – Faculty of Forestry
MUR – Forest and Water Resources Scientific Laboratory
PTF – Faculty of Food Technology
TEPEK – Technology and Knowledge Transfer Department
VBF – Faculty of Environment and Civil Engineering
VMF – Faculty of Veterinary Medicine

Other partners:

BIOR – Scientific Institute of Food Safety, Animal Health and Environment BIOR

BMC – Latvian Biomedical Research and Study Centre
DU – Daugavpils University
LOSP – Latvian Agricultural Organisation Cooperation Council
LU – University of Latvia
ĶI – Latvian State Institute of Wood Chemistry
MeKA – SIA Forest and Wood Products Research and Development Institute
OSI – Latvian Institute of Organic Synthesis
RTU – Riga Technical University
RSU – Rīga Stradiņš University
Silava – Latvian State Forest Research Institute Silava
VA – Vidzeme University of Applied Sciences