



Catalogue of R&D&I services for SMEs

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EUROPEAN UNION



About S3 Couple Net

Project summary

Project identification

Programme priority	Sustainable networks and institutional cooperation
Programme priority specific objective	4a
DTP Project Code and Acronym	S3 Couple Net
Project title	Cross-border network for activating the S3 strategy of the South Bohemian Region and Upper Austria
eMS Project Number	ATCZ262
Name of the lead partner organisation	Jihočeský vědeckotechnický park, a.s.
Project duration	16 months
Start date	1. 9. 2021
End date	31. 12. 2022

Description of the project

The South Bohemian Region and Upper Austria have long supported the development of innovative entrepreneurship, whether through various support schemes, the development of a regional innovation ecosystem, cooperation with other institutions in the region or the implementation of measures in accordance with its S3 regional strategy. In both regions, these development documents for the coming period have recently been revised and updated (RIS3 Strategy of the South Bohemian Region 2021-2027 / # upperVISION2030).

It is a strategic approach to the economic development of the region in the field of research and innovation, which is a process of identifying opportunities and positive aspects of the region, which can benefit from specialization in a particular field of science or technology. The concept of smart specialization recommends regions or states to create the content and design of their innovation strategy to maximize the impact of regional policy together with other EU policies. It is based on the Commission Communication entitled "The contribution of

regional policy to smart growth” in the context of the Europe 2020 strategy of October 2010, which refers to these strategies as Smart Specialization Strategies. In principle, therefore, these strategies address the needs and innovation potential of both regions concerned (South Bohemian Region and Upper Austria). Attention is paid to the existing infrastructure (R & D & I, production and tertiary spheres), specific trends derived from the economic profile of the region and new technological directions (so-called megatrends), which are again based on innovation profiles of the area, but also on current economic challenges.

Thanks to the harmonized RIS3 methodology, it is possible to effectively analyze both documents, create a cross-border network of key actors and find common needs, complementary capacities, specific measures and activities. A unique opportunity is also offered by the upcoming new programming period, on which the preparation of potential projects and cooperation potentials of the network members is aimed.

On both sides of the border, this project is approached by partners who are directly responsible for the successful implementation of these regional strategies and at the same time represent entities with a region-wide scope. The main goal of the project is to activate an effective cross-border network of actors based on a detailed comparative analysis of S3 strategies in the South Bohemian Region and Upper Austria, which will prepare a set of measures for the development of cooperation in key areas for the regions.

Partners

<i>Name</i>	<i>Type</i>	<i>Country</i>
Jihočeský vědeckotechnický park, a.s.	Lead partner	Czech Republic, South Bohemia
Business Upper Austria - OÖ Wirtschaftsagentur GmbH	Project partner	Austria, Upper Austria

The catalogue of R&D&I services

The catalogue of R&D&I services for SMEs was prepared in close coordination of both partners. The methodology for selecting the institutions included in the search differed slightly, which is due to the structure and role settings of the individual actors of the regional innovation systems.

In the South Bohemia Region, all 11 scientific research institutions that have their headquarters or detached workplaces in the region were included in the catalogue, whereas in Upper Austria, also due to a more developed infrastructure and organisations with specific roles (e.g., clusters), 14 were included. Direct contact has been established with all entities and it is envisaged that the online format will be further expanded in the framework of the implementation of the S3 Couple Net project.

On-line version: www.s3cn.eu/radai-services



Biology Centre CAS

Biologické centrum AV ČR, v.v.i.

The Biological Centre of the CAS, v. v. i. (hereinafter referred to as "BC") consists of five scientific institutes (Institute of Entomology, Institute of Hydrobiology, Institute of Parasitology, Institute of Molecular Plant Biology and Institute of Soil Biology), and since 2016, the SoWa research infrastructure has been part of the BC, focusing on complex studies of soil and water ecosystems and their interactions. Currently, the Biological Centre with its more than 780 employees is the largest non-Prague institution of the Czech Academy of Sciences. At the same time, it is one of the largest scientific institutions of ecologically oriented research in Europe. The common denominator of the scientific research of the individual BC institutes and the SoWa research infrastructure are the themes of evolutionary biology and ecology with an emphasis on the origin and evolution of species diversity and its sustainability.

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Services

Services for the private sector:

Agriculture, forestry, fishing, food processing

- biological protection of plants against insect pests
- ecological control of insect pests of forest trees
- analysis of the spread of antibiotics and antibiotic resistance in soil
- diagnosis of diseases of bees and other pollinators
- food supplement for bees to increase their resistance and immunity
- diagnosis of plant viruses and more effective defence against viral diseases
- detection of new plant viruses
- analysis of soil fertility and quality
- diagnosis of parasites in fish farms and their elimination
- use of soil microorganisms for food and industrial purposes
- biotechnology

Human and animal health

- solving economic and medical problems related to human and animal parasites
- development of a tick vaccine for domestic and farm animals
- development of a universal human tick vaccine and potential drugs against tick-borne encephalitis and other viral diseases caused by parasites
- research on the gut microbiome and the use of safe intestinal parasites for the treatment of autoimmune diseases
- use of the soil microorganism collection to search for biologically active substances suitable for medicine (antibiotics, anti-inflammatory substances)
- metabolomic analytics

Services for the public sector:

Environment

- assessment of the quality of environmental components and biodiversity (soil, water, forest, meadow, landscape) and analysis of the state of the environment
- short-term and long-term monitoring of the environment
- revitalization, reclamation and phytoremediation of the landscape (habitats depleted by intensive agriculture, post-industrial habitats, habitats with ecological burden)
- regeneration and revitalisation of soil and water in the environment
- evaluation of anthropogenic impacts and pollution
- formulating nature conservation measures to achieve a balanced ecosystem and high biodiversity
- formulation of measures for the management of protected landscapes
- assessment of the ecological status and management of water bodies (Římov, Lipno, Šumava lakes) and their catchment areas
- forecasting the evolution of environmental quality in relation to human activity and climate change

Equipment / infrastructure

SoWa Research Infrastructure

- It deals with research on soil and water ecosystems in the context of sustainable landscape use. It focuses on the development of new technologies, applications, approaches and strategies for the efficient use of natural resources.

Institute of Soil Biology

- Equipped laboratories for soil microbiology, zoology, nanobiotechnology, soil organic matter.
- The institute develops the multidisciplinary field of soil biology, i.e. soil zoology, microbiology, chemistry and micromorphology, and addresses fundamental issues related to soil formation, fertility and regeneration - revitalisation, reclamation, remediation of landscapes and soils, including the investigation of soil profile and properties such as water retention, with the aim of using this information for agricultural management and subsequent recommendations.

Institute of Hydrobiology

- Equipped laboratories for fish and zooplankton ecology, microbial water ecology, hydrochemistry and ecological modelling.
- The specialisation of the Institute's staff ranges from hydrochemistry through biochemistry, microbiology, algology, protozoology, zooplankton zoology and ichthyology. The main mission of the institute is then research involving explanations ranging from the role of fish in food webs to support fisheries, biomanipulation or conservation, to predictions of nutrient loss from ecosystems in response to global trends in atmospheric pollution and climate change, to biotechnological optimization as a powerful and sustainable tool for removing micropollutants from aquatic resources.

Institute of Entomology

- Equipped laboratories of molecular and developmental genetics, molecular cytogenetics and chronobiology, telomeres, biochemistry and physiology, biodiversity and nature conservation.
- Applied research was the original purpose of the institution and the institute has produced more than 150 patents in the field of agriculture and forestry. These include processes for the preparation of bacteria, viruses and fungi useful for the ecologically sound control of insect pests, the development of pheromones for monitoring the occurrence of harmful insects, the use of parasitoids and predators to control aphids, the development and application of insect juvenile



hormone analogues, etc. One very important by-product of research on entomopathogenic fungi, for example, was the discovery of cyclosporine, a substance that suppresses the body's immune response.

Department of Molecular Biology of Plants

- Equipped laboratories of plant biochemistry and biophysics, epigenetics, photosynthesis, molecular cytogenetics, plant molecular signalling and plant virology
- The institute is equipped with instruments and facilities necessary for molecular biological study of plants, including air-conditioned greenhouses, climate-boxes and tissue culture rooms. It is authorised to work with genetically modified organisms and quarantine plant pathogens. His research makes a significant contribution to the national plant biotechnology program, provides expert diagnosis of quarantine plant viruses for the Ministry of Agriculture and the State Plant Health Administration, and provides analysis of genetically modified crops for the Ministry of the Environment, including expert collaboration in drafting laws and regulations related to GMOs.

Institute of Parasitology

- Equipped laboratories for molecular parasitology, tick-borne diseases, evolutionary parasitology, disease vector biology, fish parasitology, opportunistic parasitosis, electron microscopy.
- The Institute of Parasitology is a leading national and international institution focused exclusively on research in the biology and ecology of parasitic protozoa and eukaryotic microorganisms, helminths and arthropods. The results obtained are used in the prevention and treatment of human and animal diseases, as well as in agriculture. Currently, the research teams of the Institute are involved, among other things, in the development of point-of-care diagnostics of Covid-19 and, in cooperation with the South Bohemian Hospital, in its treatment with convalescent plasma.

Best practices / case studies of cooperation

aiolite, spol. s r.o.

- Development of informatics and advanced artificial intelligence tools for metabolomics data processing and mining and their integration with complex biological and clinical information.

Mezinárodní testování drůbeže, státní podnik

- Testing of a new acaricide for the elimination of poultry breeding by the chicken bumblebee.

Vodohospodářský rozvoj a výstavba a.s.

- Development of a technical measure to prevent migration of undesirable fish species above the Lipno river basin in order to support the recovery of trout and pearl mussel populations.

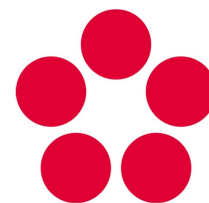
L.E.S. CR spol. s r.o.

- A new type of trapping device for the pine woodpecker.

Keywords

Biology, biodiversity, environmental biology, ecology, parasitology, entomology, plant molecular biology, hydrobiology, soil biology, landscape conservation, tick research, climate change, bark beetles, bees, disease prevention and treatment, microorganisms, viruses, resistance.





University of South Bohemia in České Budějovice

Jihočeská univerzita v Českých Budějovicích

The University of South Bohemia in České Budějovice (JU) ranks among research-oriented universities. Research at JU is mainly focused on natural sciences, social sciences and humanities. An important aspect of the University's scientific research activities is close cooperation with institutes of the Academy of Sciences of the Czech Republic. Since 2019, the university has been the recipient of the HR Excellence in Research Award, a prestigious award obliging research institutions to create friendly working conditions, professional development and transparent procedures for hiring researchers. In terms of disciplinary profile, the university achieves excellent, internationally competitive results, particularly in the natural sciences (biology, earth sciences, chemistry, other natural sciences), as well as in agriculture, forestry and fisheries. Despite a lower degree of orientation towards medical disciplines, the results of research activities in this area are also very good in national comparison. There has also been increasing success in developing results in technical disciplines linked to the natural sciences (e.g. materials and environmental engineering).

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Services

For private sector:

- innovative technologies for licensing;
- custom research and development;
- finding research partners for joint research;
- arranging expert consultations with researchers;
- use of research, development, laboratory and instrumentation capabilities at the university;
- technology transfer consultancy;

For public sector:

- innovative know how for use within the public sector
- custom or contracted research and development;
- identifying suitable research partners for joint research and developing collaborations on specialist topics;

- facilitating expert consultation with researchers;
- life-wide training;
- use of research, development, laboratory and knowledge transfer consultancy;

Equipment / infrastructure

At the University of South Bohemia we offer you the opportunity to use the equipment and know-how of the University of South Bohemia in České Budějovice. We will enable you to innovate a product or solve problems you are facing during development by:

- cutting-edge instruments that may be unaffordable or financially inefficient for you to acquire;
- experts who understand your problem and can advise you on solutions;
- a range of services that are not available in the normal commercial environment in the country.

Best practices / case studies of cooperation

AGRA GROUP A. S., STŘELSKÉ HOŠTICE

- AGRA Group a. s. has licensed a patent - NanoFyt SI- Preparation for inducing an increase in the production of bioactive compounds in plants and its use

FOOD REVOLUTION s.r.o.

- Licensed the AquaSheriff software and wiring diagram for the microPC and measurement probes.

BA HA S.R.O.

- Licensed Patent No. 307467 (Method of labelling germ cells, in particular primordial gonocytes of cartilaginous fish).

LANNION ENTERPRICES s.r.o.

- Licensed utility model No 32167 Device for remote control of potentiometers of electronic devices, in particular analogue music amplifiers.

BLACK GARLIC s.r.o.

- Licensed utility model No. 34375 - Black garlic with antioxidant activity.

City of VOLARY

- Long-term cooperation on the concept of the Systemic Case method of individualized social work or efforts to generally "network" services. It is a way of organizing the whole system of community support in indicated cases of people with multiple needs and their families. With the aim of achieving better support outcomes and greater client satisfaction.

City of TÁBOR

- Long-term cooperation on the development of health and social services for the elderly.

Keywords

Science and research, education, study, technology transfer, knowledge transfer, university, international cooperation, lifelong learning, study programs, media



Institute of Microbiology CAS - ALGATECH Centre

Mikrobiologický ústav AV ČR, v. v. i. - Centrum ALGATECH

The Třeboň workplace of the Institute of Microbiology of the CAS - ALGATECH Centre - is one of the world-renowned workplaces for basic and applied research on microscopic algae, cyanobacteria and photosynthetic bacteria, including the development of algal biotechnologies. It is the largest workplace dealing with basic and applied research on microscopic algae in the Czech Republic.

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Services

We offer collaboration in the form of contract or collaborative research.

In the application sector, we are mainly engaged in:

- Selection of suitable microalgae strains for the production of the desired substances.
- Breeding of microalgae (non GMO).
- Determination of conditions for optimal cultivation of selected strains of microalgae.
- Cultivation of microalgae in autotrophic and heterotrophic regimes.
- Cultivation of enriched microalgae (for example, selenium or iron)
- Isolation and purification of valuable compounds by chromatographic methods (CCC).
- Algal biomass processing.
- Analyses of valuable substances, especially pigments and fatty acids.
- Special microscopic analyses.



Equipment / infrastructure

- Cultivation systems for autotrophic and heterotrophic cultivation of microalgae, including technological facilities for downstream processing (concentration, disintegration, drying, packaging in inert atmosphere).
- Culturing systems are available in sizes from laboratory to semi-operational scale (millilitres to hundreds of litres) and in different environments - open, closed, outdoor, indoor, fermenters.
- Analytical facilities for detailed chemical analysis of algal (plant) biomass.
- Chromatographic instruments for separation and purification of substances, especially counter-current shaking chromatography.
- We have modern microscopic equipment at our disposal, especially a laboratory confocal microscope, which is suitable for super-resolution imaging of all classical fluorescent dyes and proteins excitable with our laser kit (e.g. DAPI, TFP, GFP, Alexa, CFP and others) used in single-cell biology. Experimental procedures include methods for detecting protein mobility and interaction at the nanoscale level, including Fluorescence Recovery After Photobleaching (FRAP), correlation methods (e.g., Fluorescence Correlation Spectroscopy (FCS)).



Best practices / case studies of cooperation

Algamo s.r.o., Czech Republic

- Development of a genetic method to determine contamination of culture systems.

BDI-BioLifeScience GmbH, Austria

- Downstream processing of *Haematococcus pluvialis* microalgae biomass.

Aveflor a.s., Czech Republic

- Development of a chromatographic method for the purification of astaxanthin monoesters for use in pharmacology.

Bioenergy 2020+, Austria

- Consultancy in the field of heterotrophic cultivation of microalgae.

Phycom, NL

- Breeding microalgae for heterotrophic cultivation within the H2020 project

Keywords

microbiology, microalgae, cultivation, biotechnology, analysis, chromatography, purification of substances

Botanical Institute of the CAS

Botanický ústav AV ČR, v. v. i.

The Třeboň's department was established in 1971 in a location ideal for the study of wetlands. Nowadays, we are researching various endangered ecosystems, studying the influence of changing environmental factors on the growth, body structure and function of underground plant organs not only in our country, but all over the world. We are developing one of Europe's oldest collections of microorganisms and maintaining a unique collection of aquatic and wetland plants. The department includes an analytical laboratory, an anatomical and dendrochronological laboratory and a library.

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Services

Services for private sector:

- analysis of surface and groundwater, analysis of soil samples and plant material
- dendrochronological analyses with a focus on forest ecosystems
- we offer strains of cyanobacteria and algae, culture media and other services
- we offer aquatic and wetland plants for basic and applied research

Services for public sector:

- surface and groundwater analysis
- analysis of soil and plant material samples
- dendrochronological analyses with a focus on forest ecosystems
- we offer strains of cyanobacteria and algae, culture media and other services
- we offer aquatic and wetland plants for research, conservation cooperation and the provision of rescue cultures of endangered plants

Equipment / infrastructure

The analytical laboratory uses the following analysers with computer data output:

- IC cation version with autosampler (Metrohm)
- Lachat QC 8500 automatic injection analyzer - three-channel FIA system
- FIA STAR 5012 flow injection analyser with spectrophotometric detection
- Dionex ICS-3000 Ion Chromatography System
- TOC analyzer SKALAR FormacsHT and SKALAR PrimacsMCS

The Dendrochronology Laboratory has complete equipment for the preparation and measurement of forest tree samples, including the software required for the analysis of forest tree data.

Best practices / case studies of cooperation

Agency for Nature and Landscape Protection of the Czech Republic

- cooperation on the level of landscape care, maintenance of rescue cultures of endangered plants and their repatriation to alternative habitats.

City of Třeboň

- water quality monitoring based on the requirements of the Environmental Commission of the Třeboň City Council

ENKI, o.p.s.

- cooperation in sample analyses

Keywords

Analysis of water, soil and plant material, dendrochronological analysis, provision of cyanobacteria and algae cultures, provision of plants for research, cooperation in nature and landscape conservation





ENKI, o.p.s.

ENKI, o.p.s.

ENKI, o.p.s. focuses its activities on sustainable landscape management aimed at restoring reservoir ecosystems, pond management and the use of natural and artificial wetlands. It is also involved in solar and landscape energy and restoration of landscapes disturbed by mining. It also focuses on outreach, education and innovation programmes. ENKI, o.p.s. is the operator of the Science and Technology Park in Třeboň (formerly the Třeboň Innovation Centre).

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Services

Private / public sector services:

- Design and evaluation of adaptation measures to climate change based on knowledge and monitoring of solar energy fluxes and vegetation function. Recommendation of measurement methods and affordable instrumentation.
- Sustainable pond management, monitoring and management design, fish stocking design, management of natural bathing habitats with respect to water quality.
- Hydrobiological and ecological assessment of reservoirs including phytoplankton and zooplankton determination.
- Biological and ecological supervision, biological transfers, feasibility studies, conceptual studies, etc.
- Restoration of mining-disturbed landscapes and their water regime - revitalisation design and monitoring.
- Use of Geographical Information Systems (GIS) and Remote Sensing in agriculture, forestry, for state administration.
- Inspection of the structure to identify parts of the structure that will become hazardous waste or may be a source of hazardous waste when removed from the structure or to identify materials that can be reused.
- Assessment of the hazardous properties of waste
- Education and awareness through accredited courses (accreditation No: AK/I-9/2021) and lectures
- Organisation of conferences and seminars, rental of conference rooms
- Training and innovation programmes and technology transfer into practice, especially in the introduction of progressive high-tech technologies and ecotechnologies

Services of an accredited testing laboratory:

- sampling and analysis of surface, drinking and bathing water

- sampling of sediment, agricultural soil, construction and demolition waste, etc.

Equipment / infrastructure

- Mobile field station for measuring temperature and energy fluxes at the Earth-atmosphere interface
- Testing laboratory - measurement of basic physicochemical parameters, major ions in water samples, determination of phytoplankton and zooplankton
- Experimental laboratory - instrument servicing, microscopy, teaching
- Off-road vehicle with mobile transport box for transporting fish and other aquatic animals
- Airborne thermal imaging including software for evaluation
- Field equipment for collection and determination of basic physicochemical parameters of water samples.
- Field equipment for sampling of solid matrices (sediment, soil, debris...), probes, boat with engine, catamaran, 3D sonar
- Special depth probe for sediment sampling from great depths (50m).

Best practices / case studies of cooperation

- Fishing enterprises (Rybářství Třeboň, a.s., Hluboká nad Vltavou, Rybářství Kardašova Řečice...)
- Plosab, s.r.o.
- Sokolovská uhelná, a.s.
- R-Princip Most, s.r.o.
- Hydro& Kov s.r.o.

Keywords

applied research, water management in the landscape, solar and landscape energy, pond management, use of natural and artificial wetlands, science and technology park, thermal imaging, local climate, testing laboratory, education, education, sediment, waste management





Faculty of Management - University of Economics in Prague

Fakulta managementu - Vysoká škola ekonomická v Praze

The Faculty of Management is one of the six faculties of the University of Economics (VŠE). It is located in Jindřichův Hradec. It offers a Bachelor and Master academically oriented study programme in Management and a Bachelor professionally oriented study programme in Process Management. It also offers a doctoral degree programme and provides a number of courses within the framework of lifelong learning or specific courses for the professional sphere. The scientific and research activities of the faculty are mainly focused on the development and application of those disciplines that support managerial activity and especially managerial decision-making. Thematic scientific research activities include e.g. strategic management, organisational behaviour, marketing and consumer behaviour, healthcare management, methods of supporting managerial decision-making, valuation, etc.

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Services

Services for private sector:

- The Faculty of Management of the University of Economics offers consultancy in the following areas: management of organisational processes, strategic marketing, organisation planning and decision-making, management of transport and logistics systems, asset valuation and the use of MS Office. It also provides services in the form of data collection and subsequent processing. For the private sector, the company provides mystery shopping, market analysis, economic modelling and evaluation of organisations' activities.

Services for the public sector:

- The Faculty of Management offers consultancy in the following areas: regional development and management of cities and municipalities, management and modelling of organisational processes, strategic planning and decision-making of public sector organisations, professional education and retraining, and data collection and subsequent analysis.



Equipment / infrastructure

The Faculty of Management is a scientific research institute with appropriate equipment. It is located in a modern building in the centre of Jindřichův Hradec. The technical equipment provides full service for excellent educational and scientific activities. In addition to classrooms, a library and spaces for social events, the faculty has, for example, a marketing laboratory that enables research on consumer behaviour in real conditions (eye-tracking).



Best practices / case studies of cooperation

dm drogerie markt s.r.o.

- Mystery shopping.
- Collaboration on the concept of diversity in the organization.

E. ON

- e-mobility - exploration of possible locations for the placement of dobs. stations.

South Bohemia Tourism Centre

- Analysis of the strategic plan, development of the strategic plan.

City of Jindřichův Hradec

- Collaboration on the town planning study; data collection and evaluation.

TACR Ambica

- Project focused on the creation of automatic monitoring of selected business processes based on available data from the organization's information sources.

Keywords

consultancy in management, marketing and other areas, marketing laboratory, surveys and investigations, data analysis and interpretation



CzechGlobe - Institute of Global Change Research CAS

CzechGlobe - Ústav výzkumu globální změny AV ČR, v. v. i.

The CzechGlobe office in České Budějovice focuses on issues related to the human dimension of the impacts of global change. The Department of Landscape Ecosystem Function Analysis is primarily interested in studying (i) below-ground ecosystem processes in forest ecosystems at the level of individuals, communities and ecosystems, (ii) responses of forest ecosystems to environmental change at the ecosystem and landscape level, and (iii) the impact of global change on the role of biodiversity for the fulfilment of selected ecosystem functions, as a basis for the assessment of ecosystem services.

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Services

Services for the private sector:

- The department is dedicated to modelling and analysis of selected ecosystem functions of the landscape, from which all proposals for mitigation and adaptation measures based on the outputs of environmental modelling are usable for the private sector at a more detailed scale. These recommendations for practice are tailored to individual entities, taking into account local specificities - natural conditions, socio-economic indicators and the expected impacts of environmental change in a given region.

Services for the public sector:

- Proposals for measures to mitigate the impacts of climate change at the local level - typically for individual municipalities and ORP. Analysis of the degree of land and landscape degradation due to increasing anthropogenic pressure and climate change, which is manifested by loss of productive capacity and other ecosystem functions. Development of methodological procedures for qualified assessment of ecosystem functions of the landscape and assessment of the ecological status/potential of sub-components of the environment, using tools of multi-criteria analysis.

Equipment / infrastructure

The department has the basic laboratory equipment necessary for the application of molecular biological research methods. Environmental modelling is carried out using the latest software tools (including GIS), operated on modern hardware equipment. Long-term field research is carried out using specialised infrastructure (e.g. a network of meteorological stations, gauge overflows for the analysis of the hydrological balance of the landscape, equipment for monitoring the quality of surface water, etc.), located in the current areas of interest of the department (e.g. Šumava, Bohemian-Moravian Highlands, Giant Mountains, Southern Moravia).

Best practices / case studies of cooperation

In the context of research on the influence of the ecological status of habitats along water bodies on the transport of pollutants from agricultural production, cooperation is established with owners and users of agricultural land adjacent to watercourses. On the basis of regular information on the application of fertilisers or pesticides, it is possible to analyse the quality of the filtering function of these habitats and the subsequent level of pollution of surface waters. After evaluation of the data obtained, the information will be used, among other things, to propose appropriate measures to eliminate water pollution while maintaining current conventional management practices.

In our interest studies on the impact of negative factors on agricultural production, the outputs are always directed not only to the public/state sector (local government), but also to the private sector (e.g. cooperation with the Agricultural Cooperative Černovice, or with the private farmer Vladimír Šrůtek from Benešov).

For small landowners (e.g. private farmer Dana Kindlmann), as well as larger orchard owners (e.g. ZD Chelčice), a methodology has been developed to support natural pollinators.

Keywords

Ecosystem functions/services, environmental modelling, climate/environmental change, carbon sequestration, adaptation and mitigation measures, below and above ground biodiversity, impact of climate change on forest and agricultural ecosystems.





Institute of Microbiology CAS - Nové Hradky (Laboratory of Structural Biology and Bioinformatics)

Mikrobiologický ústav AV ČR, v. v. i. - pracoviště Nové Hradky

The laboratory conducts research in structural and systems biology at the level of molecules, cells, tissues and the whole organism. The research combines a variety of methods ranging from computational and spectroscopic to molecular biological, biochemical with protein crystallography. The laboratory focuses on molecular systems biology, the relationship between protein structure and function, dynamic changes associated with functional processes at the protein level, the interaction of cofactors and subunits in protein complexes, and the study of ion and biomolecule passage across the cell membrane. The castle grounds also include an extensive congress centre.

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Services

Services for the private sector:

- Offer of laboratories for training and workshops, offer of conference rooms with accommodation capacity (for conferences, retreats, trainings, seminars, meetings, congresses, workshops and other corporate events or even balls).

Services for the public sector:

- Research activities in the field of structural biology, bioinformatics and systems biology. Organisation of training courses and excursions for schools. Organisation of professional conferences. Offer of training facilities, including laboratories. Offer of conference facilities with accommodation (for conferences, retreats, training sessions, seminars, meetings, congresses, workshops and other events for the scientific and public sectors).

More also at www.konferencnizamek.cz

Equipment / infrastructure

There is a basic molecular biology laboratory, a protein crystallography laboratory including an X-ray diffractometer, equipment for two-photon polarization microscopy, a laboratory for membrane physiology research and an equipped computer room with a computer cluster. The building also houses a conference centre with historic halls including a theatre hall, an equipped restaurant and accommodation facilities with 17 rooms with a total capacity of 44 beds.

Best practices / case studies of cooperation

- Cooperation (in the field of two photon polarization microscopy) with Innovative Bioimaging, s.r.o., Podolska 1490/6, 14700 Prague 4, Czech Republic
- Cooperation (organizing excursions in research laboratories) with the Trhové Sviny Gymnasium Školní 995, 374 01 Trhové Sviny and the Czech-English Gymnasium in České Budějovice.
- Cooperation in organizing conferences with institutes of the Academy of Sciences of the Czech Republic, University Hospital in Motol, South Bohemian Theatre. Organization of summer schools, FEBS courses and EMBO workshops.

Keywords

Molecular biology; structural biology; bioinformatics; computational chemistry; conference centre; seminars; conferences; workshops



College of European and Regional Studies

Vysoká škola evropských a regionálních studií

The University of European and Regional Studies is the largest private university in the South Bohemia Region. The study programmes focus on the education and training of staff of the integrated rescue system, public administration, its institutions and organisational units. The school also has an office in Příbram. Scientific and research activities focus mainly on research in the field of security, legal and economic sciences in cooperation with other universities, research institutions, as well as enterprises and entrepreneurs.

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Services

Services for public / private sector:

- expert analysis in the areas of security, law and regional development.

Best practices / case studies of cooperation

- Centrum pro bezpečný stát z.s.
- Hasičský záchranný sbor Jihočeského kraje
- RERA, a.s.
- Vysoká škola DTI

Keywords

security, crisis management, South Bohemia Region, law, regional development, university

Hussite Museum in Tabor

Husitské muzeum v Táboře

The museum's research activities focus on the history of Hussitism and Tábor in the late Middle Ages, the early modern period and the modern era. It also studies Hussite traditions and Czech historical memory connected with Hussitism and the Czech Reformation. The Museum carries out rescue archaeological research or archaeological supervision activities within its territorial scope. The Blatské muzeum in Soběslav and Veselí nad Lužnicí carries out professional activities in the fields of natural science (botany and zoology) and social science (history, art history and ethnology). The research focuses, for example, on the Hussite and Hussite memorial sites and monuments of the Czech Republic, flora and vegetation of the Tábor region, small fauna of the Tábor region, folk architecture of the Tábor region, history of the Soběslav and Veselsko regions or artists of the Tábor region with an emphasis on the Soběslav and Veselsko regions. The activities of the Hussite Museum also include the organisation of conferences and professional meetings, seminars or involvement in research and educational projects of other institutions. The results of research are consistently communicated to the public in the form of educational programmes - especially for all school levels - lectures, excursions and also through extensive publishing activities, including on-line programmes.

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Services

Services for the private sector:

- With few exceptions, the Hussite Museum does not conduct research activities for the private sector. It is a memory institution with a public service obligation and therefore does not focus on scientific research for the private sector. The only significant exception is the archaeological supervision of construction projects within the meaning of the Heritage Act in its territorial jurisdiction. The main purpose of archaeological supervision is the protection or preservation of movable cultural heritage that could be endangered during construction work. The archaeologists of the Hussite Museum actively cooperate with the investors of construction projects in order to avoid unnecessarily increasing their costs and prolonging the construction work. The principle is mutually beneficial cooperation.

Services for the public sector:

- The main mission of the Hussite Museum as a scientific institution is to conduct basic and applied research and to make its results available to the professional and general public in an appropriate manner. The basic means of dissemination

of research results are exhibitions, publications, lectures, seminars, lecturer programmes and excursions. The Hussite Museum publishes a peer-reviewed journal and many non-periodical publications. In addition, the Hussite Museum regularly organises scientific conferences with international participation. The Hussite Museum actively cooperates with educational institutions of all levels, from primary schools to universities. It is also involved in lifelong learning and senior education programmes.

Equipment / infrastructure

The Hussite Museum has built sufficient infrastructure for research activities for the time being. In 2019, professional staff are using the renovated office space in the main building of the museum. This is also where the depositories equipped with modern fire protection and security systems are located. In addition, the Hussite Museum has specialised depository spaces for archaeological collection items and a central depository for ethnography or other collection areas. The specialized library of the Hussite Museum is equipped with a modern storage system, its book collection and periodical collection are transferred to an electronic catalogue accessible on-line. There are also conservation workshops and workshops for exhibition activities.

Best practices / case studies of cooperation

Cooperation with the private sector is limited to archaeological rescue research for business entities (private companies) or for individuals. An important part of archaeological research is carried out by the Hussite Museum for companies that carry out construction and engineering work on state infrastructure projects (railways, motorways).

Keywords

Memory institution, basic research, applied research, archaeological rescue research, collection development, editorial activities, international conferences, lecturer programmes, lifelong learning.



SCCH - Software Competence Center Hagenberg

SCCH - Software Competence Center Hagenberg GmbH

Software Competence Center Hagenberg (SCCH) is a non-university research center that has been driving excellence in applied research in the fields of data science and software science for over 20 years. This focus enables optimal implementation of projects in the fields of digitalization, Industry 4.0 (the smart factory) and artificial intelligence. SCCH serves as an interface between international research and domestic industry, and SCCH researchers conduct world-class research.

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Services

For private sector:

- COMET-Funding and Expertise in national and international funding projects.
- Consulting for Start-ups and information regarding special funding possibilities.

For public sector:

- Expertise in national and international funding projects.

Equipment / infrastructure

Basic overview of the technology background, equipment and infrastructure available: SCCH is the only COMET center that focuses on data and software science. Excellent research is conducted in both areas at SCCH. More than 100 researchers offer experience in the fields of informatics, mathematics, biological-informatics and mechatronics. SCCH is involved in different networks and offers state of the art research. SCCH bundles and integrates national and international scientific competencies and expands its contacts to scientists and scientific institutes in Austria and abroad in a project- and future-oriented manner. SCCH currently cooperates with more than 60 research institutions in Austria and abroad. This scientific networking contributes sustainably to the development of the Austrian research landscape.

Best practices / case studies of cooperation

Privacy Preserving Machine Learning for Industrial Applications (PRIMAL)

- However, for industrial applications, large homogeneous datasets, as required for Deep Learning, are often not available. Transfer Learning alleviates this problem by allowing models to be built on different (but related) datasets. Another promising approach is to share distributed data (e.g., from different departments and companies) to build models collaboratively, although this raises privacy concerns. PRIMAL addresses these problems by developing privacy-preserving Deep Learning techniques to build shared global models using distributed datasets in such a way that each dataset remains privately owned by each individual. The goal is to protect private data of each individual while enabling machine learning-based analysis of everyone's aggregate data as a whole.

Human-AI Teaming Platform for Maintaining and Evolving AI Systems in Manufacturing (TEAMING.AI)

- The EU-funded TEAMING.AI project aims to achieve a breakthrough in smart manufacturing. By introducing a new teaming framework for humans and AI, manufacturing processes will be optimised: The greatest strengths of the two elements can thus be maximised, while safety guidelines and ethical requirements are checked and adhered to.

Blastozysts

- The aim of the research project is to improve the quality assessment of blastocysts using machine learning methods (AI - artificial neural networks) in such a way that the probability of pregnancy through IVF is increased. In particular, the aim is to be able to predict blastocyst quality with a higher accuracy than the mean consensus of a group of specialised clinicians.

Extracting Knowledge from Software

- The SCCH has eKNOWS developed. This analysis platform helps to extract this knowledge from the source code again and to present it in an understandable way. Depending on the domain, this can be mathematical formulas, decision tables, data flows or calculated curves.

AI accelerates organic precision farming

- Deep-learning approaches are now being used to develop plant models that can not only recognise crops but also determine exactly where stems or roots are located

Keywords

Data Science, Predictive Analytics, Transfer Learning, Predictive Maintenance, Fault Detection, Big Data, Stream Data Processing, Machine Learning, Software Science, Interface Design, Security, User-Centered Software Engineering, Software Test, Artificial Intelligence, Human-AI-Teaming, Artificial Intelligence Standards, High Performance Computing



Center of Excellence for Smart Production

University of Applied Sciences Upper Austria, Campus Steyr

Intelligent production processes lead to intelligent products. Such products are not only the guarantors but also the prerequisites for the competitiveness of companies in the future. As an innovative business partner, the Center of Excellence specialises in research and transfer related to smart production. Coordination and networking of all relevant departments facilitates a lively exchange of information between the Hagenberg, Steyr and Wels campuses with regard to R&D as well as bachelor's and master's theses. Pilot projects and demonstration projects related to the theme 'Innovative Applications for the Digitisation of Production' are being carried out together with Upper Austrian businesses.

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Services

For private sector:

- Trainings
- Feasibility Studies
- Research Studies
- Research Projects
- Individual Industrial Projects

For public sector:

- Trainings
- Feasibility Studies
- Research Studies
- Research Projects

Equipment / infrastructure



Hagenberg:

- HeuristicLab (open source software for optimisation and data analysis)
- PPOV-Cockpit (software for optimisation and visualisation of production data)
- Cloud and high performance computing
- Mixed Reality Lab
- Surface Hub
- Cardboard engineering

Wels:

- 3D printing equipment (metal, plastic, plaster)
- 3D digitising
- Machine tools (milling, turning, forming)
- Plastics processing facilities
- Industrial and lightweight robots
- Parts transfer system
- Programmable controllers
- Various data transfer systems and sensors
- HMI and communication systems for process tracking
- Programming and simulation systems for robots
- Image processing systems
- X-ray computed tomographs

Steyr:

- Simulation generator SimGen
- Workshop production planning
- Virtual reality hardware
- Augmented reality smart glasses
- OptiTrack motion capture system
- Industrial camera with Machine Vision software

Best practices / case studies of cooperation

For best practices and projects see [here](#).

Keywords

Internet of Things, Business Analytics / Prescriptive / Analytics, Assistance Systems, Human-Centered Technologies, Operations Management, Additive Manufacturing, Product Development





Softwarepark Hagenberg

Softwarepark Hagenberg

As a location for constant innovation and continuous progress in the software field, Softwarepark Hagenberg is an ideal environment for regional and interregional IT projects. Our management acts as an agent for many successful projects and welcomes national and international delegations to Hagenberg during visits and events. Special emphasis is placed on promoting young talent by means of various workshops.

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Services

Fostering networks for knowledge transfer, for exchange of experience, for sustainable cooperation on strategic and policy level as well as on operational (cross-sectoral) project level involving all partners of Softwarepark Hagenberg (from research-education- business).

- Settlement support
- Press and public relations
- Knowledge transfer through hosting events, seminars and workshops
- Exchange of experience
- Cooperation projects
- Sales and internationalisation activities

Equipment / infrastructure

- flexible, comfortable office spaces in nearly every size
- open light-flooded offices
- individual heating and cooling system in each room
- pleasant climate in the office because of the building automation
- flexible and proved infrastructure for electronics assembly, computer and telecommunications
- illumination or lighting and shading are fully automated and individually adjustable
- electronic access system

- office rooms equipped with fibre-optic connection
- car park for rent in the basement garage

Best practices / case studies of cooperation

- Professional internships as part of the bachelor degree programs.
- Topics for Bachelor and Master theses provided by companies.
- Study projects as part of the standard curricula of degree programs: a group of 5-7 students is working on a project topic for one or two semesters spending around 6 hours per week.
- Collaborative research projects with a combination of private and public funding.
- Integration of software companies in order to bring research prototypes operative.

Keywords

Intermediary, networker, cooperation projects, open innovation, research, education, business, projects (national, international, EU)





RECENTDT - Research Center for Non-Destructive Testing GmbH

RECENTDT - Research Center for Non-Destructive Testing GmbH

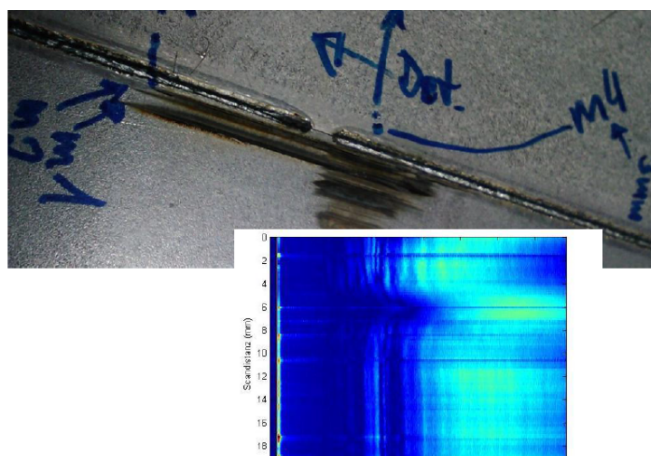
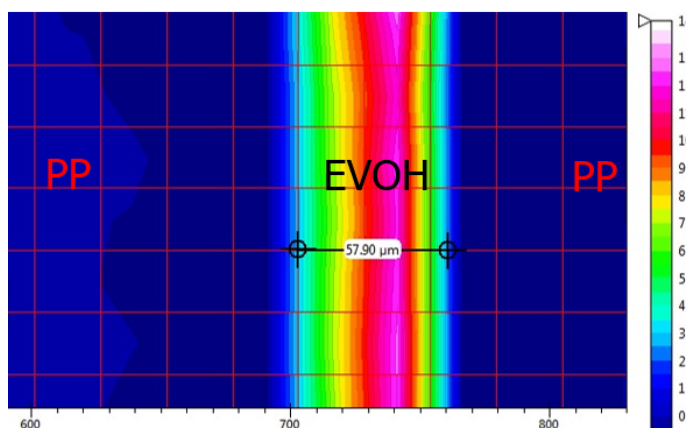
The Research Center for Non-Destructive Testing GmbH (RECENTDT) provides services throughout the whole R&D process chain: from application-oriented fundamental research to the development of state-of-the-art technology for industrial applications. RECENTDT implements customized, high-tech solutions for contactless sensing, material characterization, process-analytics and non-destructive testing. We provide measurement and characterization services and develop in-line sensing solutions for basically all industrial branches and we cooperate with multi-national enterprises and with SMEs equally.

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Services

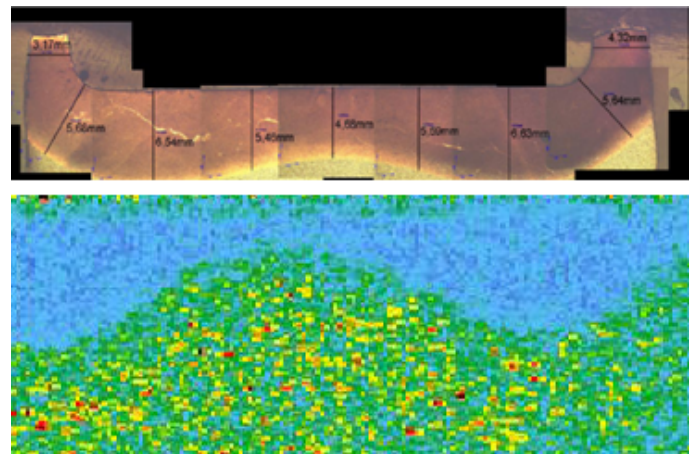
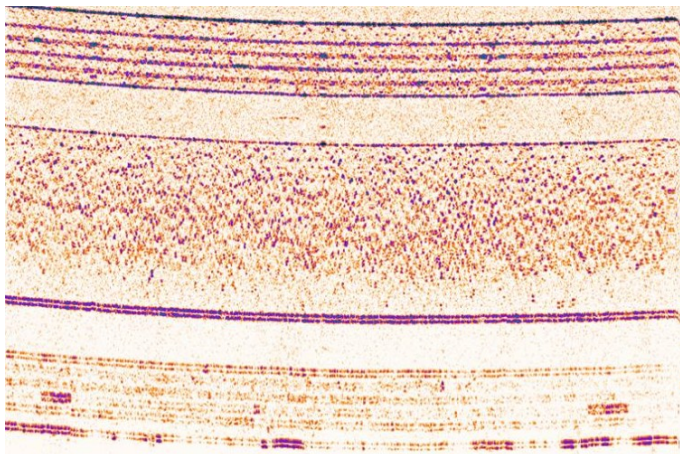
development of solutions for non-destructive and contactless sensing, testing and materials characterization



Equipment / infrastructure

RECENDT relies on a team of about 40 researchers with long-standing experience in the application of potonic technologies for contactless and non-destructive sensing in various industrial branches. Expertise is provided in the following technologies: LUS (Laser-Ultrasound), PCA (Physical and Computational Acoustics), NIR (Near Infrared) and Raman Spectroscopy, OCT (Optical Coherence Tomography) and THz (Terahertz) technologies (imaging and spectroscopy).

All groups have latest equipment available (optical benches and components, laser light sources, interferometers, sensing devices, Laser-Ultrasonic equipment, various OCT systems, various spectrometers and spectroscopic equipment in all wavelength ranges and for Raman spectroscopy, (infrared spectroscopic) microscopes, THz-sources, THz-cameras, dryers, robots, SW-tools, high-performance computing infrastructure, electronics and software development suites) and perform their work in dedicated laboratories located in Linz at the campus of JKU (Johannes Kepler University).



Best practices / case studies of cooperation

RECENDT is since 2010 providing various developments and solutions for many industrial branches.

PAC - The research network

Process Analytical Technologies (e.g. [Infrared Spectroscopic Methods](#)) are able to monitor chemical processes inline and control them precisely, which enables perfect optimization. We have conducted intensive research in this field since 2010 and can act as your contact point to the entire research network PAC - www.k-pac.at

Spatially resolved spectroscopy

Do you want to know the exact local distribution (in micrometer range) of your chemical components? With [Mid-Infrared-Microscopy](#) we can chemically characterize and measure materials and cross-sections (e.g. residues or inclusions) with a spatial resolution as small as 5 µm.

Inline quality assurance in welding

Non-destructive testing of welds is possible with [Laser-Ultrasound](#). Thanks to the good automation capacity also inline measurements at high speed can be carried out, depending on the required resolution. With a repetition rate of 10 Hz, 100 Hz or even higher, flaws, inclusions, hot cracks and pore concentrations can be found.

Hardness penetration depth in steel

The determination of the hardness penetration depth in thermally hardened components is essential for quality control. State-of-the-art is to cut samples and do etching and hardness measurements. [Laser-Ultrasonics](#) opens a non-destructive alternative. Thereby, zones of different microstructures at arbitrary positions can be imaged up to a tomographic representation of the hardness penetration depth.

Visualization of multilayer structures

As illustrated in this example of an organic photovoltaic cell, multilayer structures can be measured and analysed with OCT ([Optical Coherence Tomography](#)). Organic PV-cells consist of organic semiconducting materials, transparent electrodes, and a protective coating. As a result of this, a homogeneous layer structure without defects, inclusions etc. is relevant for the quality, functionality, and long-lasting performance of the product.

Keywords

customer specific R&D services, in-line contactless sensing, PAT process-analytical technologies, NDT non-destructive testing, in-situ measurement



TIMed CENTER - Center of Excellence for Technological Innovation in Medicine

University of Applied Sciences Upper Austria / FH OÖ

The Center of Excellence for Technical Innovation in Medicine (TIMed CENTER) combines the strengths of the four Upper Austrian University of Applied Sciences faculties in Hagenberg, Linz, Steyr and Wels to develop technical solutions in the fields of medical engineering, medical materials, and digital health. The TIMed CENTER research groups are dedicated to new research questions and problems in the six interdisciplinary research fields of Data Science and Systems Engineering, Biomedical Sensor Technology, Biomimetics and Materials Development, High-Resolution Imaging, Medical Simulators, and Drug Characterisation.

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Services

- Data Science and Systems Engineering
- Biomedical Sensor Technology
- Biomimetics and Materials Development
- High-Resolution Imaging
- Medical Simulators
- Drug Characterisation

Equipment / infrastructure

To promote research cooperations, we offer access to our Core Facilities. These can be understood as centralised, shared resources that provide access to high-end instruments, cutting-edge technologies, state-of-the-art methods, and services, as well as competent consulting services to address complex RDI issues.

- Medical 3D-Nanolithography for Additive Manufacturing
- Nanoscopic Characterization of Cellular Processes

- Dynamics and Interactions of Bio-Nanostructures
- Medical Simulators
- Bioactive Ingredients Research
- Bioinformatics and Image Processing

Best practices / case studies of cooperation

CAC-SuMeR - Czech-Austrian-Center for Supracellular Medical Research

In this cooperative project lead by the FH Upper Austria, interdisciplinary research focuses on the production of organ-like carrier structures. Goals of this study are the lithographic structuring and biomolecular analysis on the nanometer scale, e.g., generating a 3D-model-system for blood vessels for the investigation of arteriosclerosis or the analysis of the metabolism via the blood-brain barrier.

- Partners: FH OÖ Forschungs und Entwicklungs GmbH, Austria (lead partner); Mikrobiologický ústav AV ČR, v. v. i., Czech Republic, Biologické centrum AV ČR, v. v. i., Czech Republic
- Duration: 09/2016 – 08/2019
- Funding: The project is funded under the "Interreg Austria-Czech Republic 2014-2020" program by the European Regional Development Fund (ERDF) and the Federal State Upper Austria.

ImageHeadstart

In a consortium led by the University of South Bohemia, the ImageHeadstart project addresses the challenges of digital imaging in the fields of microscopy and tomography, using the latest approaches with the help of machine learning and artificial intelligence. Research on digital imaging techniques such as light microscopy and X-ray tomography at the partner institutions has reached a stage from which many practical applications can unfold. The main goal of the project is to help companies in the Austria-Czech Republic cross-border region to translate this knowledge into new applications and technologies.

- Partners: Jihočeská univerzita v Českých Budějovicích, Czech Republic (lead partner); Ústav teoretické a aplikované mechaniky Akademie věd České republiky, v. v. i., Czech Republic; Donau Universität Krems, Austria, FH OÖ Forschungs & Entwicklungs GmbH, Austria
- Duration: 01/2020 – 12/2022
- Funding: The project is funded under the "Interreg Austria-Czech Republic 2014-2020" program by the European Regional Development Fund (ERDF) and the Federal State Upper Austria.

MEDUSA - Medical Education in Surgical aneurysm clipping

The development of the revolutionary training and planning platform for neurosurgeons serves to simulate complex brain interventions in detail and in their entirety. The strengthening of cognitive and motor skills of surgeons and the development of new technologies are the focus of our concept and should significantly increase patient safety. A hybrid simulation approach will make it possible to perform interventions on artificially manufactured brains including artificial tissue, while internal anatomical structures, such as blood vessels, virtually extend the simulation environment in the form of holograms. The challenging and extensive project is only possible due to the synergistic bundling of our competences in neurosurgery, neurosciences, medical technology and artificial intelligence, which we will use to create a lighthouse project for Upper Austrian business.

- Partners: RISC Software GmbH (lead partner); alpha medical concepts e.U.; cortEXplore GmbH; eulerian-solutions e.U.; EVO-tech GmbH; FH OÖ Forschungs- und Entwicklungs-GmbH; Johannes Kepler-Universität – Institute of Polymer Product Engineering; Johannes Kepler-Universität - Institut für Polymerwissenschaften; Kepleruniversitätsklinikum Linz - Universitätsklinik für Neurochirurgie; LIFEtool gemeinnützige GmbH; Netural GmbH
- Duration: 06/2019 – 05/2023
- Funding: This project is funded by the state of Upper Austria as part of the strategic economic and research program "Innovatives OÖ 2020".

PROTrEIN - Computational Proteomics Training European Innovative Network

Mass spectrometry (MS) is used to quantify known materials and identify unknown compounds. Powerful enough to uncover the structure and chemical properties of different molecules, it is one of the main technologies in proteomics (the study of the proteins expressed in cell, organism or tissue). MS is fast evolving with new acquisition methods and high-content data structures that expand the applications of the technology, many of them relying on artificial intelligence. All these experimental



possibilities require the development of new algorithms, and interactive and highly visual tools. Therefore, there is a need for more sufficiently trained bioinformaticians. The EU-funded PROTrEIN project is merging the academic and non-academic sectors by training a new generation of specialised bioinformaticians to tackle computational proteomics.

- Partners: Fundacio Centre de Regulacio Genomica, Spain (lead partner); Syddansk Universitet (Denmark); Max-Planck-Gesellschaft zur Förderung der Wissenschaften EV, Germany; VIB VZW, Belgium; Centre National de la Recherche Scientifique CNRS, France; Technische Universität München, Germany; Anaxomics Biotech SL, Spain; Eberhard Karls Universität Tuebingen, Germany; FH OÖ Forschungs & Entwicklungs GmbH, Austria; Thermo Fisher Scientific (Bremen) GmbH, Germany; Tampereen Korkeakoulusaatio SR, Finland
- Duration: 01/2021 - 12/2024
- Funding: The project is funded under the EU HORIZON 2020 program "EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions" by the European Commission.

Keywords

medical engineering, medical materials, digital health, data science, systems engineering, biomedical informatics, biomedical sensor technology, biomimetics, materials development, high-resolution imaging, medical simulators, drug characterisation



TCKT - Transfer Center for Engineering and Technology

TCKT - Transfercenter für Kunststofftechnik GmbH

The TCKT is your first address for application oriented research and development regarding plastics engineering and technology. We help you develop solutions for your plastics problems within our research projects, but you are also welcome to use our offer of industry contractual work, regardless if it is for single tests or longer studies.

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Services

TCKT is a partner for companies of all sizes, from EPU via SME up to large enterprises, in regard to plastics technology, testing and recycling.

Equipment / infrastructure

TCKT has a well equipped plastics processing and testing lab, where all the major processes (extrusion, injection moulding, compounding, 3dprinting, ...) and most important characterisation methods (mechanical, thermal, rheological, ...) as well as accelerated aging, chemical analysis and emission testing is possible. The background lies in plastics processing, testing as well as plastics recycling and material modification. The team consists from plastics engineers, chemists and mechanical engineers of researchers with a well trained team of technicians, operating the equipment.

Best practices / case studies of cooperation

CIRCUMAT – cooperation project on plastics recycling, demonstrating the possibilities with up to 100% polyolefin recyclates in injection moulding and extrusion applications with partners along the whole value chain

PET2Pack – recycling project dealing with PET from non-bottle sources towards applications in food and non-food applications; cooperation with several other researchers and about 20 company partners from waste collection via recyclers to packaging

producers to close the loop

EnzATex – project on enzymatic separation and materials recycling of polyester and cotton from textiles, to recycle the fibres in a high quality approach to again produce fibres and textiles from that

Keywords

application oriented R&D in plastics modification, plastics testing, compounding, plastics recycling





LKR - Leichtmetallkompetenzzentrum Ranshofen

LKR - Leichtmetallkompetenzzentrum Ranshofen GmbH

With many years of experience in research and innovation for the lightweight design of the future, AIT's LKR Leichtmetallkompetenzzentrum Ranshofen is a leader in the development of high-quality light metal alloys, their sustainable processing through to the development of functionally integrated lightweight components and their recycling.

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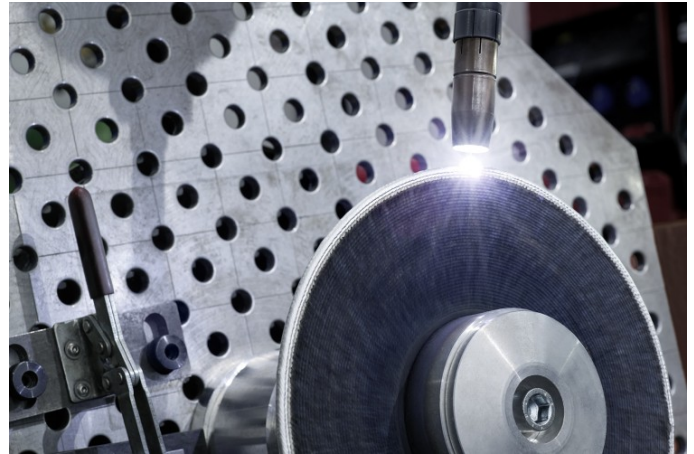
Services

For private sector/for public sector:

- LKR Leichtmetallkompetenzzentrum Ranshofen specialises in the development and processing of high-performance light metals. The focus is on the design and sustainable, efficient production of vehicles and components. LKR researchers investigate novel light metal materials (e.g. aluminium, magnesium and titanium alloys) and associated forming technologies complemented by highly specialised material characterisation and simulation methods. One particular field of research focuses on wire-based additive manufacturing, one of the most promising methods for 3D light metal printing.
- LKR's expertise covers the entire light metal process chain, from alloying to casting and forming as well as process and lightweight design, including the simulation tools required for all these processes. This allows materials to be tailored exactly to customer requirements, while also ensuring sustainable and energy efficient processing – with the ultimate aim of creating new light metal materials with advanced characteristics for future applications.

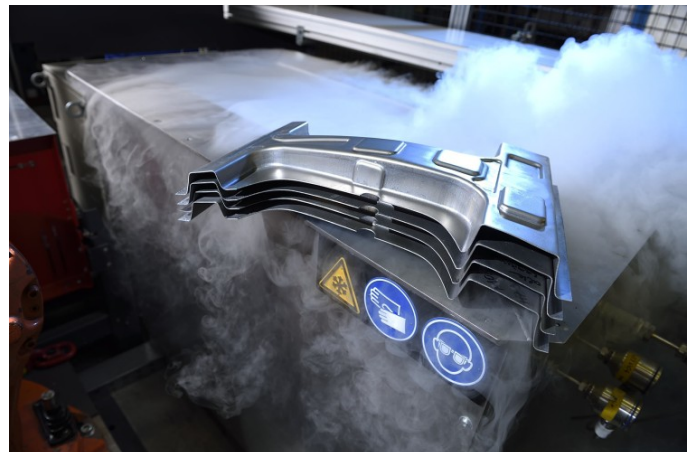
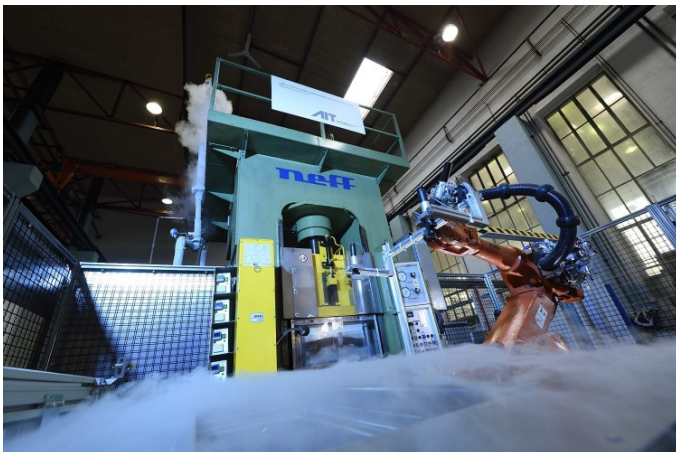
Services:

- Materials Development
- Casting Technology
- Forming Technology
- Wire-based Additive Manufacturing
- Numerical Simulation
- Material Testing and Characterisation



Equipment / infrastructure

- Additive Manufacturing Laboratory
- Cold Chamber Die Casting Plant
- Horizontal Continuous Casting Plant
- Extrusion Plant
- Test Center: Mechanical Materials Tests
- Test Center: Pendulum Machine
- Test Center: DCS
- Test Center: Dilatometer
- Test Center: Fieldemission Scanning Electron Microscope



Best practices / case studies of cooperation

- Project We3D: Light metal components from the 3D printer
- Project SUSTAINair: Lightweight, multifunctional and intelligent airframe parts
- Project MULTI-FUN: Enabling MULTI-FUNCTIONal performance through multi-material additive manufacturing
- Project MAST3Rboost: Novel hydrogen tanks as a contribution to decarbonising the transport sector
- Project Pro-Imagine: Novel processing methods for magnesium forming

Keywords

lightweight design, WAM, WAAM alloy development, numerical simulation, casting, forming



K1-MET

K1-MET GmbH

K1-MET is one of the leading and internationally renowned metallurgical competence centres for ferrous and nonferrous metallurgy situated in Austria. K1-MET hosts a research programme with four main themes, named Areas. The focus of Area 1 are raw materials and recycling solutions. Area 2 contains projects on metallurgical core processes. Area 3 focuses on decarbonization of the steel industry with the main aspects hydrogen-based steelmaking, energy efficiency, and reduction of specific CO₂ emission. Finally, Area 4 develops modelling and simulation tools also consolidating and combining knowledge from the other Areas.

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Equipment / infrastructure

High temperature tube furnace HTRV (for vertical operation)

The high temperature furnace can be used to examine the dissolution behavior of different materials, such as scrap, lime, etc. in slags or liquid metal under a protective gas atmosphere (argon or nitrogen). Maximum operating temperature is 1,800 °C. The furnace is equipped with a rotational unit to allow a rotation of the sample crucible with up to 100 revolutions per minute. The furnace is located in the technical center of the Chair of Ferrous Metallurgy (Montanuniversitaet Leoben, Franz-Josef-Strasse 18, Leoben 8700, Austria) and is operated in cooperation between the Chair's technical staff and K1-MET's technical staff.

The main components of the furnace are:

- HTRV 100-500/18
- Gas supply
- Control panel
- Rotary actuator
- Linear unit
- Plant construction
- Sample feeding

Further relevant parts are as follows:

- Heating element made of molybdenum silicide (MoSi)
- Sintered ceramic tubes made of Al₂O₃
 - 1 tube with LxD (Length x Diameter) of 100 mm x 1,000 mm
 - 1 tube with LxD of 75 mm x 620 mm
 - 1 tube with LxD of 60 mm x 675 mm
- Mantle thermoelement
- Shaft made of Wolfram for sample fixation
- Membrane bellow
- Water cooling system



Best practices / case studies of cooperation

- Dissolution of scrap pieces in hot metal to study the mass transfer of carbon and iron
- Dissolution of calcium- and magnesium-containing materials in metallurgical slags to quantify the slag forming behavior of different additives (primary sources and recycling materials)



UAR

UAR - Upper Austrian Research Ltd.

Upper Austrian Research Ltd. (UAR) is the leading organization for non-university research of the federal province of Upper Austria and a key player in the research, technology and innovation policy. With its associated companies UAR promotes innovative solutions at the crossroads where fundamental research meets applied research and provides access to top-quality R&D capacities.

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Services

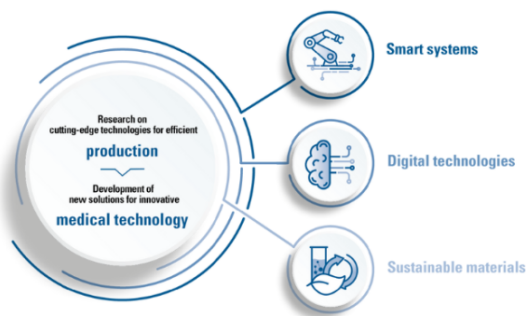
For private sector:

Beside the services our member and partner can contribute, the Upper Austrian Research as the leading organization for non-university research can offer:

- Finding the right partner for your project within our UAR Innovation Network
- Contact Point for the COMET funding programme in Upper Austria

For public sector:

- In- and outgoing visits to exchange information regarding the Innovation Ecosystem and capabilities of Upper Austria
- Finding the right partner for your project within our UAR Innovation Network
- We welcome all enquiries regarding the Innovation Ecosystem in Upper Austria



Equipment / infrastructure

Upper Austrian Research with its associated companies offers a wide range of equipment and infrastructure in the fields of smart systems, digital technologies and sustainable materials.

Best practices / case studies of cooperation

SCCH – Software competence Center Hagenberg:

Human-AI Teaming Platform for Maintaining and Evolving AI Systems in Manufacturing (TEAMING.AI)

- The EU-funded TEAMING.AI project aims to achieve a breakthrough in smart manufacturing. By introducing a new teaming framework for humans and AI, manufacturing processes will be optimised: The greatest strengths of the two elements can thus be maximised, while safety guidelines and ethical requirements are checked and adhered to.

RISC Software:

- Research Project MEDUSA: The goal of the MEDUSA consortium is to develop a revolutionary training and planning platform for neurosurgeons to simulate complex brain interventions in a detailed and holistic manner.
<https://medusa.health/de>

RECENDT - Research Center for Non-Destructive Testing GmbH:

- Spatially resolved spectroscopy

Do you want to know the exact local distribution (in micrometer range) of your chemical components? With Mid-Infrared-Microscopy we can chemically characterize and measure materials and cross-sections (e.g. residues or inclusions) with a spatial resolution as small as 5 µm.

Keywords

Robotics / human-machine, Cyber-physical systems, Efficient production processes, Mechatronics, Assistance systems, Process optimisation, Simulation methods, Digital twin, Electrical & hydraulic drive systems, Software and data quality, Big data management, Image data processing & analysis, Artificial intelligence, Secure systems, VR/AR technologies, Sensors – signal processing, Radar technologies, Power electronics, Renewables, Circular economy & sustainability, Plastics & recycling, Light and heavy metals, Lightweight construction / CFRP materials, Joints, Non-destructive testing methods, Additive fabrication, Functional materials



Institute of Technology and Business in České Budějovice

Vysoká škola technická a ekonomická v Českých Budějovicích

Institute of Technology and Business in České Budějovice (VŠTE) is a non-university university with a professional focus, which primarily develops applied and contract research. The focus of the implemented research respects both the accredited study programmes and the specific requirements of business and social practice. High-quality laboratory and instrumentation facilities and equipment are available for research and are being further expanded.

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Services

We provide companies with space, technical facilities and experts for development and research.

We also provide services in the following areas:

- digitalization of the production process, technical and economic optimization of production processes, subsequent introduction into production,
- problems of porosity of alloys, identification of physical-mechanical properties of materials, creation of predictive models suitable for technological processes, in synergy with computer technology responding to the needs of industrial practice with emphasis on Industry 4.0,
- implementation of transport surveys for carriers, optimization and rationalization of logistics processes,
- determination of pump characteristics,
- fire protection solutions,
- EEG biofeedback,
- development of composite materials based on cements, limes and other binders,
- 3D scanning and photogrammetry, digitization and model creation, diagnostics of building structures,
- design of production machines from TPV to the actual cooperation and control in production and construction,
- data analysis, instrumental measurement, statistical analysis.

We cooperate with other universities and research institutions on projects supported by the Ministry of Industry and Trade, the Czech Technology Agency, etc.

For the public sector we offer industrial experiments, physical and numerical simulations, technical and economic optimization of production processes and subsequent implementation into practice, analysis of building materials, 3D measurements, 3D design and manufacturing, laboratory melting and more. For municipalities, we offer traffic studies and analyses, research activities in the field of traffic safety in municipalities, modelling of traffic systems, etc. We offer environmental impact assessment, energy and economic evaluation of buildings.

Equipment / infrastructure

VŠTE has laboratories for teaching, research and industrial partners. The focus of the laboratories corresponds to the individual accredited disciplines, i.e. engineering, construction, transport and logistics, economics. In the laboratories, it is possible to investigate, for example, the properties of materials, perform measurements, the composition of materials or create new products on CNC. We have laboratories for packaging materials, road transport and unmanned aerial vehicles. The Department of Civil Engineering has a heavy laboratory, building insulation, indoor environmental quality and HVAC laboratories, 3D scanning and digital technology laboratories. We use state-of-the-art simulation software for numerical and physical simulations.

Precise measurements are performed using stationary 3D coordinate measuring technology or a mobile 3D scanner. Within the chemistry laboratory, we focus on organic and inorganic chemistry. We use gas chromatography, nuclear magnetic resonance or thermogravimetric analysis. In the field of environmental science we use, for example, a pyrolysis reactor. In the field of economics, the laboratory focuses, for example, on the topic of predicting the development of a company using neural networks.

Best practices / case studies of cooperation

- Research and development of zinc waste recycling technology for the production of high quality zinc alloy castings (for GD Druckguss s.r.o.).
- Research and development of refining technologies to increase the quality of aluminium alloys for high demanding castings (for MOTOR JIKOV Slévárna a.s.).
- Health-safe surfaces based on recycled rubber (for EKAZ Praha a. s.).
- Evaluation of the reliability of the prediction of the arrival of means of transport at public transport stops in České Budějovice (for the Transport Company of the City of České Budějovice).
- Analysis of the quality of transport services on selected regional railway lines (for GW Train Regio, a.s.).

Keywords

Internships, labs, engineering, transportation logistics, business economics, construction, building materials, 3D scanning, data analysis, predictive maintenance, EEG biofeedback, Industry 4.0



Cognify your Products and Production Systems with Pro²Future



Pro²Future

Pro²Future GmbH

We dedicate ourselves to research in the field of industrial ICT, with special regard on the development of cognitive products and cognitive production systems. Our research is deliberately aligned with ambitious and visionary targets and is oriented beyond "Industry 4.0" right now. Expressed in simplified terms, we want to scientifically support enterprises in their digitalization efforts.

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Services

Competence Center for Excellent Technology on Products and Production Systems of the Future, Expertise in national (FFG, FWF, ...) and international (EU/Horizon) funded projects.

Services in the core Areas of Cognitive Products and Cognitive Production Systems, as well in underpinning Areas of Perception and Aware Systems, Cognitive Robotics and Shopfloors and Cognitive Decision Making. Additionally, Pro²Future is focussing on emerging research fields like Pervasive AI, Causality, Explainable AI, Edge Analytics, Engineering for Distributed AI, Analytical User Guidance, Failsafe & Robust AI, AI for Sustainable Production, and furthermore on TinyAI and Methods and Tools for Sustainable, integrated Product-Production-Service Systems.



Equipment / infrastructure

Pro²Future focusses on cognitive products and cognitive production systems, being categorized as a Competence Center for Excellent Technology by FFG on the field of production and materials, but also focussing on digitalization, ICT and applied AI research. More than 30 scientist are researching on late-breaking scientific topics at Pro²Future Headquarters in Linz and also in Graz. As a special AI focussed hardware-benefit, Pro²Future has its own NVIDIA DX A100, a universal system for covering AI workloads.

Best practices / case studies of cooperation

Project **SINPRO**: A forecasting model-based discovery of causal links of key influencing performance quality indicators in sinter production □ Improvement of Sinter Production Quality and Outcome (Primetals Technologies Austria GmbH)

Project **E-Manager**: Novel measuring method enables to detect axial distribution of mechanical energy input along a single-screw extruder □ Improved Energy Efficiency in Extrusion

Project **CRP**: Usage of a cognitive headgear for optimizing processes in industrial production □ Artificial Intelligence meets Human Intelligence (Common Research Programme together with the Austrian Center for Digital Production, TRUMPF, AVL List, Fronius International, SONY Europe, KEBA AG and Wacker Neuson)

Project **Simatic Failsafe 4.0**: Enhancing automation devices with low-cost IoT equipment enables device-awareness and fosters novel cognitive services □ Creating Awareness in Automation Systems (Siemens AG Austria)

Projekt **A2PS**: Supporting the detection of deviations, optimization potential, and just in time replanning without exposing workers □ Privacy-respecting monitoring of manual assembly lines (Profactor, Wacker Neuson, Fabasoft)

Keywords

Cognitive Products, Cognitive Production Systems, Perception and Aware Systems, Cognitive Robotics, Cognitive Shopfloors, Cognitive Decision Making, Pervasive AI, Causality, Explainable AI, Edge Analytics, Engineering for Distributed AI, Analytical User Guidance, Failsafe & Robust AI, AI for Sustainable Production, and furthermore on TinyAI and Methods and Tools for Sustainable, integrated Product-Production-Service Systems.



Wood K plus

Wood K plus - Kompetenzzentrum Holz GmbH

We are a leading research organisation in the area wood and wood-related renewable resources in Europe. Our core competences are materials research and process technology along the complete value chain – from raw material to finished products. We develop methods and basics and perform applied research on the economy-science interface, in order to enable resource-efficient management in the circular bioeconomy.

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Services

In short to long-term research projects and programmes the experts of Wood K plus search for innovative solutions for companies, with scientific partners providing their know-how and many years of experience.

Within the framework of service agreement tests, feasibility studies, expert reports and business consultancy are provided.

Wood K plus also acts as project manager from project definition, preparation of applications for projects, integration of partners over processing to clearing and communication with sponsors.



Equipment / infrastructure

Wood K plus has a comprehensive laboratory and technical-center infrastructure. Our labs and pilot plant stations are equipped with devices for biomass digestion, separation, conversion and purification of biorefinery products. Regarding biocomposites we are running extrusion, compounding, injection moulding, melt spinning, 3D FLM printing, 3D scanning, hot press, high temperature equipment for carbon materials (porous structures, bio-based CF), powder spray coating, plasma coating, desintegration technologies, wood drying and mosification.

In addition we have comprehensive characterization and test equipment (mechanical, optical, thermal, physical, odeur so.) for our conducted research activities. Through our intensive co-operation with universities and company partners we have also the possibility to use their infrastructure.



Best practices / case studies of cooperation

The future scientific and technological challenges lie (1) in a more comprehensive and holistic, cascadic use of biomass, (2) in increasing the functionality and performance level of materials from renewables, and (3) in new processing and (circular) production technologies.

Within the research program proposed for *“WOOD: next generation materials and processes – from fundamentals to implementation”*, these challenges will be addressed focussing on the topics:

- bio-based fibre-reinforced composites
- lignocellulose biorefinery
- new bio-based materials
- understanding and controlling processes
- surfaces and interfaces
- integrated innovation research

COMET Module i³Sense (FFG)

The aim of i³Sense is to unlock the full potential of sustainable composites in a wide range of applications and offer safe alternatives to traditional high carbon footprint systems with intelligent, integrated and impregnated cellulose based sensors.

BioCarb-K - Biobased Carbon Materials and Ceramics

Wood K plus conducted research on biobased carbon materials within a 6-year fundamental project. Research was carried out on bio-based carbon fibers, activated carbons, shaped carbon bodies and new methods for modification and characterisation. (co-funded by ERDF and the Province of Upper Austria under the IWB2014-2020 programme)

SUSBIND (BBI JU)

The SUSBIND consortium develops, produces and tests bio-based binders as an alternative to formaldehyde binders to substitute fossil-based chemicals with those from renewable resources. Surplus feedstock sourced from existing European biorefineries will be used for the production of binders and intermediates. SUSBIND aims at producing and validating these bio-based binders with leading wood board manufacturers for two product types: P2 particle board and medium density fibreboard.

Natural3D (FFG/Shanghai)

The goal was to realize true 3D printing with high-strength reinforced materials and to develop continuous natural fibre reinforced 3D printing filaments and also filaments with nano-scaled cellulosic nano crystals (CNC) and/or carbonized biobased nanofillers as reinforcement, as well as to establish a new 5/6 axis 3D printing method for load path oriented fibre placement on freeform surfaces (FFF- and robot arm-based).

Keywords

Basic and application oriented R&D, sustainability assessment, wood based materials, renewables, biocomposites and - polymers, surfaces, biotechnology, digitisation, resource-efficiency, circular economy





Business Upper Austria - Clean Tech Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Clean Tech Cluster

The Cleantech Cluster (CTC) is the platform for environmental technology- and energy technology companies in Upper Austria. It strengthens the innovative power, competitiveness and visibility of the partner companies and contributes to market growth in the field of sustainable environmental and energy technologies along the value chain. Together, innovative, ecologically and economically sensible solutions for the present and the future are developed and implemented.

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Services

The Cleantech Cluster (CTC) bundles the potential and expertise of our partners. This increases their innovative strength and international competitiveness. The needs of small and medium-sized enterprises are at the heart of our strategy. Initiation of project groups for knowledge transfer

- Cooperation projects
- Collecting and preparing information relevant for energy and environmental technology branch
- Knowledge transfer via events, seminars and workshops
- Sales and internationalisation activities
- Exchange of experience
- Press and public relations

Equipment / infrastructure

Department for cluster and cooperation efforts - [our service for SME](#) (YouTube).

Best practices / case studies of cooperation

Experienced project developer and partner for a wide range of European funding schemes, e.g. Interreg (cross-regional, Central Europe, Alpine Space and Danube Transnational), Horizon 2020 and Horizon Europe.

Keywords

Circular economy, sustainability, environmental engineering, biobased industry, energy efficiency and renewable energy, resource and material efficiency, recyclables management, energy transition, European cooperation projects, networker



Software and Research
in Logistics, Industry,
Medicine and IT

<https://www.risc-software.at>



RISC Software GmbH

RISC Software GmbH is a well-established, national and international Research and Development company. We incorporate mathematics, computer science and machine learning methods with practical experience and thereby develop individual software solutions for companies, medicine and industry in interdisciplinary teams.

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Services

RISC Software GmbH is engaged in research and development involving applied research, experimental development and technology transfer to basic research in the field of professional software development. RISC Software GmbH emerged as the application-oriented area of the RISC Institute JKU and is therefore deeply linked to the university environment. RISC Software covers three main areas:

- **Software Development:** The application of methods and expertise from computer science and mathematics for problems of science, business and industry.
- **Technology Transfer:** The technology transfer by software from the University in the economy, particularly in terms of basic research.
- **Applied Research Projects:** The implementation of applied research projects for the Austrian economy in national and international context.

RISC Software GmbH supports you when searching for a matching grant for your personal project proposals to keep the costs manageable. Approximately 90% of the projects were transferred from research in practice or in the next stage of development within two years.

RISC Software GmbH distinguishes three types of projects:

- **Feasibility and Concept Studies:** Feasibility and concept studies can be conducted as innovation checks or feasibility studies.
- **Cooperative Research:** The cooperative research is characterized as a consortium of research and industrial partners who submit a joint research project, get it authorized and then implement it. Following funding opportunities are available: EU projects, ICT of the future cluster projects.
- **Contract Research:** In contract research the rights and obligations are clearly defined by a contract between contractor and client. There are special requirements of the Grantor for specific national funding programs such as innovation

cheque, feasibility study or FFG basic programs.

Basically, this unbureaucratic funding opportunities for Austrian companies are a low-threshold way to research to reduce risk in the beginning and RISC Software GmbH is happy to advise with its long experience

Equipment / infrastructure

RISC Software GmbH is one of the most renowned Austrian research institutions and has been involved in research and development since it was founded by Prof. Bruno Buchberger about 30 years ago. This involves applied research, experimental development and technology transfer to basic research in cross-sectional areas, as well as professional software development in the scientific environment.

Embedded both in the economy, industry and the research landscape of Upper Austria, RISC Software GmbH has already been able to demonstrate its qualities as an active node in the network and as a team player in many cooperative projects and activities. RISC Software GmbH also demonstrates its know-how in international network projects.

RISC Software GmbH supports established companies as well as start-ups and newcomers in their developments. Through findings from research and development projects in the most diverse areas of medicine, industry, production, logistics and data and process management, RISC Software GmbH supports its partners and customers in the preparation and implementation in digitization with the help of the use of data analysis and artificial intelligence.

Best practices / case studies of cooperation

- Research Project MEDUSA: The goal of the MEDUSA consortium is to develop a revolutionary training and planning platform for neurosurgeons to simulate complex brain interventions in a detailed and holistic manner. <https://medusa.health/de>
- Project RESINET RESilience enhancement in energy grids: The RESINET project addresses the issue of resilience in energy grids, taking into account the change in framework conditions from centralized, unidirectional systems to grids with a significantly higher share of renewable, fluctuating energy feeders ("prosumers"), increasing storage capacities in the grid interconnection and controllable loads.
- Project BOOST 4.0: The largest European Big Data for Industry 4.0 initiative Joining forces towards an European Industrial Data Space. <http://boost40.eu/>
- Project SafeSign: The project investigates to what extent disturbances in current deep learning based number plate classification systems contribute to misclassifications. <https://projekte.ffg.at/projekt/3789168>
- Project ARCADES: ARCADES aims at disrupting the traditional paradigm in Computer-Aided Design (CAD) by exploiting cutting-edge research in mathematics and algorithm design. <https://cordis.europa.eu/project/id/675789>

Keywords

Complex Mathematics, Combinatorial Optimization, Algorithms, Digitization, Industry 4.0, Physical Systems, (AI-based) Data Analysis, Visual Data Analytics, Time series, forecasting, clustering, Natural Language Processing, Trustworthy & XAI, Optimization, Prescriptive Analytics, process mining, (AI-based) Image Processing, 3D Visualization, 2D/3D classification, Segmentation, 2D/3D registration, Video analysis, Simulation and Digital Twin, Modeling and Model Building, Finite element simulations with/without AI (PINN), Optimization, 3D simulation, Digitalization of processes, Virtual development of processes and products, (Agile) software development, B2B platforms, Web development, UI/UX, Data Integration and Orchestration, Presentation, Deployment, Data Management & Engineering (for Big Data), Software Modernization / Re-Engineering, Engineering Intelligence, Smart Industrial Systems, Artificial Intelligence, Deep Learning, Non-rigid registration, Heuristics

University of Applied Sciences Upper Austria, Campus Wels

Center of Excellence Food Technology and Nutrition

The Center of Excellence Food Technology and Nutrition (CoE LTE) focuses on bioactive compounds and the formulation of functional food and feed products. Therefore, various in vitro and in vivo test systems are implemented to unravel the mode of action of the compounds on a molecular and cellular level. Another topic is food quality control through various measuring procedures. In addition to basic research, we stand together with innovative partners from industry for the development of functional foods, phytogetic feed additives and highly effective natural pharmaceuticals or nutraceuticals.

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Services

- Wet-lab chemistry labs including standard instruments for chemical-analytical, biochemical, biomolecular, microbiological and cell biological experiments
- Microscopy lab with two TIR-fluorescence microscopes, well-plate reader and UV-illumination System
- Cell-culture labs including large pool of various mammalian cell-lines
- S2 lab certified for for work with genetically modified living microorganisms (GVO)
- Microbiological lab
- Drosophila lab
- Food lab
- Fermentation lab
- Bakery lab including sensory room
- Brewery

For detailed laboratory infrastructure see [Infrastructure - FH OOE](#)

Best practices / case studies of cooperation

For best practices, projects and publications see [Center of Excellence Food Technology and Nutrition — University of Applied Sciences Upper Austria](#)

Keywords

Bioanalytics, cell culture, clinical trials, genomics, in-vitro, in-vivo, in-ovo and in-silico test systems, microbiology, microscopy, proteomics, natural active compounds, functional foods, phytochemicals

tech2b Incubator

tech2b Incubator Ltd.

tech2b supports, guides and accelerates the development of innovative, technology-oriented, knowledge-intensive as well as design-oriented start-up projects. Through the tech2b promotion program (AplusB), business ideas can be developed and launched in a structured and goal-oriented way.

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Services

Founding consultation

Through individual coaching, targeted establishment of contacts and financial support, the tech2b programmes enhance the success of your start-ups. We not only assist you in the development of a convincing business concept but also support fundraising, further subsidies, the acquisition of first customers and last but not least the successful negotiation with investors. In addition, we connect startups with the relevant industries.

Industry & start-ups

PIER 4 is the Upper Austrian dock for industry, start-ups and innovative ideas! The flagships of the local economy anchor here and use our infrastructure for open innovation process development, start-up scouting and cooperation as well as project support.

USP:

- THE central start-up player in Upper Austria
- Individual, procedural 360°support
- Experts/expert organization
- Largest incubator in Austria
- Max. efficiency
- Enthusiastic founders
- THE hardware Hub



Equipment / infrastructure

For more information watch this [video on YouTube](#).

Best practices / case studies of cooperation

- Cooperation between start-ups and established companies
- Spin-offs from research
- Spin-offs from the industry
- Female founders
- Creative Sector
- Networking with international start-up hubs
- Networking with investors
- Top- references: Supported startups like tractive, xaleon, TeamEcho, Storyblok, Payolution

Keywords

Startup ecosystem, incubator, networker, Corporate open innovation, PIER 4, Upper Austria, Spin-off Consulting, Startup Incubation



LCM - Linz Center of Mechatronics

LCM - Linz Center of Mechatronics GmbH

FROM RESEARCH INTO OPERATIONAL PRACTICE For the benefit of our customers, we translate the findings from our research projects into operational practice. We offer every company a partnership and a knowledge dialog from the initial idea to the realization of the product. The use of the latest available technologies is ensured through many years of intensive cooperation with internationally renowned research partners. The combination of economic project management and sound basic research offers our customers the best of both worlds.

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Services

LCM has two areas:

- Research: cooperation with about 30 internationally reknown universities and research organisations
- Business: development and engineering. Profit oriented.

Business

Customer projects

- Contract research/development: from research to finished product and support of (commissioning). Products in small lot sizes and prototypes as a result of the projects.
- Use of methods and digital tools for the development and optimisation and automation of machines and products
- Testing and measurement services within the scope of development contracts (engine testing, testing of hydraulic drives) or individual contracts
- Technology consulting: Use of new technologies and preparation of roadmaps for the use of these technologies according to the principle of the radar of weak signals.
- Vendor-neutral advice on the selection of products and suppliers.
- Advice for the development of roadmaps for new technology trends (e.g. circular economy) for customers and simultaneous effect as sector radar
- Production of small batches as functional prototypes and finished products
- in the field of electronics and power electronics, actuators (electric and hydraulic)

- Licensing of SW tools from Symospace Suite, such as X2C and optimisation tools as add-on.

Competence fields

Electical drives technology

- Motor development up to the finished motor on request for all motor types, power up to approx. 1 MW
- Integration of the complete infrastructure (motor-pump/gearbox...-control electronics-power electronics-SW)
- Magnetic bearing technology: world leader in technology
- Testing on the LCM motor test benches
- Development of electrical actuators in general
- Development of inverters on customer request
- Electrification concepts and implementation: replacement of combustion-based technologies or hydraulics
- Prototyping: manufacturing infrastructure for small quantities
- Development of power electronics
- Development of control electronics for actuators
- SW development for actuator control (SW toolset for virtual development of actuators and optimisation for customer developments. Possibility of licensing for customers)

Hydraulic valves

- Proportional valves and optimisation
- Digital switching valves and optimisation

Expansion valves

- Linear actuators development, optimisation
- Valves for smallest volumes (ml)
- Integration into the complete infrastructure
- Mobile hydraulics
- Integrated drives

Hybrid drives

- Optimisation of (existing) drive systems
- Optimisation of processes/production plants with drive systems
- Testing of hydraulic systems on LCM test benches

Virtual testing, commissioning and development to increase the efficiency of customer projects

Sensors/IOT

- Development and use of systems with energy harvesting
- Use of wireless communication for the development of customer solutions
- Development of systems for localisation with the following technologies
- Electronics development for all areas outside of drive technology
- Use of AI systems
- Implementation of data analytics methods
- Use of signal processing methods
- Use of sensor fusion/data fusion methods
- Development of pattern recognition systems (quality assurance of parts, process quality)

Vibration technology & piezo technology

Vibration analysis

- Development of solutions for vibration damping - passive and active (piezo, electrodynamic) constructive for machines and systems
- Development of solutions for vibration generation (piezo, electrodynamic)
- Development of systems for energy harvesting



- Simulation and modelling: application of own SW or SW from other manufacturers
- Simulation of mechanical quantities: Strength, fatigue strength
- Particle simulation and flows (oil, water, air)
- CFD
- Thermal simulation
- Simulation of deformations and forming
- Control engineering
- Virtual commissioning and testing, development of a digital twin for development and operation

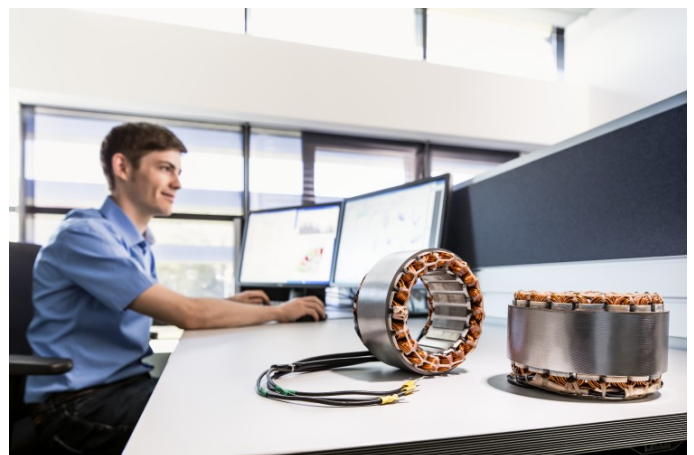
Public Sector

COMET - Carrying out research projects as a partner with a high scientific content within the framework of COMET, or EU projects, and other funded national projects.



Equipment / infrastructure

- Infrastructure for measurement and tests of
- Hydraulic pumps, valves, motors, efficiency and leakage measurements
- Vibration measurements
- Diagnosis and troubleshooting at the customer's site, portable industrial equipment, automatic measurements and evaluations at the customer's site
- Sound measurements, noise mapping
- Thermal measurements
- 3D measurement
- Testing of roughness and geometric tolerances
- Measurements and testbench for el. machines and actuators, efficiency characteristic measurement



Best practices / case studies of cooperation

LCM transfers findings from research into profitable products for its customers, accompanies its customers during production and series production up to certification support.

Figures:

- 450 customer form Germany, Switzerland, Austria mainly
- 120 employees and about 40 temporary ressources from partner (depending on the projects)

Branches:

- Automotive
- Machinery
- Plant engineering
- Medicine Technology (Components and Infrastructure)

Keywords

INDUSTRY 4.0 | DIGITALIZATION | LOCALIZATION SYSTEMS & TRACKING | PREDICTIVE ANALYTICS | OPTIMIZATION | COST REDUCTION | IMAGE PROCESSING | SMALL BATCH SIZES | ASSISTENCE SYSTEMS | E-MOBILITY | RESEARCH | AUTONOMOUS SYSTEMS | SENSING SYSTEMS | NETWORKED SYSTEMS | LCM IN BUSINESS - BUSINESS MODELS | DEVELOPMENTS - NEW PRODUCT DEVELOPMENT | DIGITAL TWIN | PREDICTIVE SYSTEMS | INTERNET OF THINGS | ARTIFICIAL INTELLIGENCE - AI





Business Upper Austria - Plastics Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Plastics Cluster

The Plastics Cluster is a cross-industry network for the plastics sector. We initiate, promote and coordinate successful cooperation between companies. As a hub connecting member companies, research institutes and decision-makers, we are also committed to creating better conditions in the plastics industry in Austria.

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Services

For private sector:

- Technology Requests & Offers, Dissemination on collaborative projects
- Trend & Technology Scouting

For public sector:

- Activities for Training, Teaching and Technology Trnsfer from Science
- Stakeholder Managment with other regions on breunch topics

Equipment / infrastructure

Online Data on Partner´s Technology Offers and overview of the technology background, equipment and infrastructure available:

- [Partner database \(kunststoff-cluster.at\)](http://kunststoff-cluster.at)
- [Cluster map \(kunststoff-cluster.at\)](http://kunststoff-cluster.at)

Best practices / case studies of cooperation

CIRCUMAT-Plastics Recycling Guideline with TCKT

- [2021-05-26_Circumat_Englisch_V4.pdf \(kunststoff-cluster.at\)](#)

Net Mould Tooling Excellence Project focusing on WAAM Technology & Aluminium

- [Forschungsprojekt „Next Mould“ \(kunststoff-cluster.at\)](#)

NABIAM AT-CZ Project to create new value chain for Nano-Bio and Additive Manufacturing

- [Nabiam - Virtual Matchmaking - Home \(b2match.io\)](#)

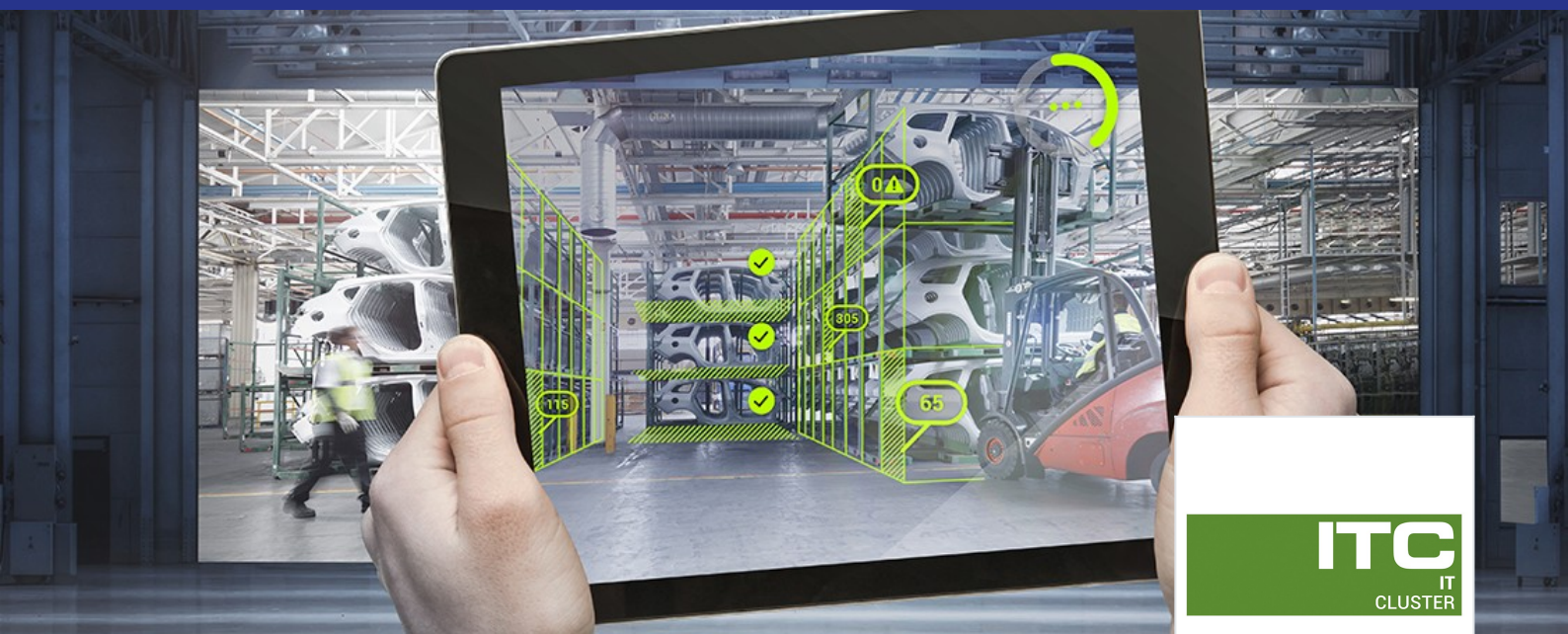
A2LT Lightweighting Platform & Whitepaper:

- [a2lt.at](#)
- [A2LT Whitepaper](#)

Keywords

Polymeric Materials, Circular Economy, Plastics Processing and Tooling, Digitalization, Innovation, Quality Management, Smart Plastics, Lightweighting.





Business Upper Austria - IT Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, IT Cluster

The IT Cluster is cooperation network for the IT sector, especially the software industry, competence hub for digitisation in all branches and adriver of visibility for Upper Austria as a digital region at all levels.

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Services

For private sector:

Information Security

- The Information Security Network as the first point of contact for all (Upper Austrian) companies on issues relating to information security. The ISN is supported by the “flagship initiative digitalization of Upper Austria”
- We are the Hub of information security for users and suppliers:
 - Sensitisation
 - and support of Upper Austrian companies in the field of information security & data protection
 - Networking:
 - with and between organisations, clusters and companies (national and international)
 - Know-how Transfer & Cooperation:
 - Initiation and Support of Cooperative Projects
 - International visibility
 - and strengthening of regional security industry

For public sector:

Industrial Data Initiative

- new business models based on industrial data, relying on platforms that allow for trustworthy cross-company data exchange and data sovereignty.

Industrial Data Initiative - InDI

- InDI Showcase – represent use cases
- InDI Academy – build up know-how
- InDI Roundtable – exchange experience
- InDI Toolbox – recognize potential
- InDI Projects – develop cooperations

Application scenarios:

- Mechanical Engineering / Production, Logistics /Transportation, Energy / Waste Management, Real Estate / Construction and Health / Fitness

For public sector:

Industrial Data Initiative

- new business models based on industrial data, relying on platforms that allow for trustworthy cross-company data exchange and data sovereignty.

Equipment / infrastructure

Through the initiation and supervision of projects, the IT-Cluster offers support in accessing national funding. The services offered range from information, consulting and event support for all stages of project preparation and implementation to networking activities or technology transfer.

Through active participation in international cooperation projects, the IT-Cluster has been able to acquire comprehensive know-how, which now offers partners the opportunity to inquire about international funding opportunities in a targeted funding consultation. With this and the targeted involvement of Clusterland partners in EU projects and the creation of an international exchange of opinions, we can support you in the internationalization process as well as provide important contacts to international networks.

Current projects:

- DEAS (Interreg Alpine Space): Digital services in the alpine region based on Open Data
- VreduNet (Interreg A/CZ): Virtual Reality for Education Network

Best practices / case studies of cooperation

hack'aware - The SME Security Quickcheck:

- With "hack'aware - the SME Security Quickcheck" we have developed a tool that gives you a quick overview of the status of IT security in your company. It is an orientation aid that serves as a basis for further discussions with internal or external cybersecurity professionals. (www.digitalregion.at/hackaware)

"Trends and Current Challenges in IT Security" - A Five-Day Qualification Seminar

- In the five-day qualification seminar "Trends and Current Challenges of IT Security", the Johannes Kepler University Linz, the Software Competence Center Hagenberg and Limes Security, in cooperation with the IT Cluster of Business Upper Austria and numerous Upper Austrian companies, have developed a comprehensive continuing education format that has been optimally adapted to the needs of the companies.

Cluster Cooperation Funding Program (SKU projects):

- The Upper Austrian Government provides a funding program to support regional innovation. Over the years, numerous cooperative projects have been initiated, funded and successfully completed in this framework, bringing together regional IT providers, industry of various sectors, and local R&D institutions.

Keywords

Enterprise Sales, Digital Business, Information Security, Industrial Data, cooperative projects, Experience exchange groups, Cooperation network, Initiatives



Business Upper Austria - Upper Austrian Food Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH Upper, Austrian Food Cluster

Since 2000, a network, which covers the entire supply chain in the food industry, was established in Upper Austria. This regional network of companies in the food industry, which works closely with suppliers, universities, research institutes, educational and public institutions, forms the basis for a national competitive edge.

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Services

- With the food cluster, we bundle our partners' potentials and competence. This in turn increases your innovation force and international competitiveness. Our strategy focuses on the demands of small to medium-size enterprises (SME).
- Successful positioning, Know-how & qualification, Cooperation & consulting, Information & communication

Best practices / case studies of cooperation

Key topic 1: New technologies and innovations

- Cluster cooperation projects – eg. Ökoverpackt: Development of eco-designed and recyclable packaging; consideration of the entire product cycle and consideration of the overall life cycle assessment
- National projects / International projects – eg. AlpBioEco: Objective of this Interreg Alpine Space project is to promote a sustainable economy through the development of bio-based business models.

Key topic 2: Quality management

- Exchange of experience – eg. Experience exchange round for quality manager: deals with the current opportunities and challenges of the future. The round uses the cross-company exchange of information and know-how, which creates added value for each company.
- Professional events / International trade fair visits

- Workshops

Keywords

innovation, cross-sectoral, intermediary, networker, cross-sectoral, cooperation projects





Business Upper Austria - Mechatronics Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Mechatronics Cluster

The Mechatronics Cluster (MC) is a supra-branch network for the support of innovative strengths and international competitiveness of companies in the mechanical engineering and plant building sector. Owners are the Business Upper Austria - OÖ Wirtschaftsagentur GmbH and ecoplus. Niederösterreichs Wirtschaftsagentur GmbH.

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Services

Digital Check

Equipment / infrastructure

The term “fourth Industrial Revolution” was first coined in German-speaking countries approximately four years ago. An initial picture of how Industry 4.0 could look like was drawn up following many discussions with experts from home and abroad.

Upper Austria businesses were questioned as part of a large-scale survey in order to paint a clearer picture for us (2,623 addresses were written to with a response rate of 25%).

An increase in flexibility, improved resource efficiency, more customised production or more rapid development of innovations were identified, among other things, as areas of potential. On the contrary, however, there are also challenges to be faced, such as different IT systems, high investment costs or lack of qualifications.

As to the question of what support companies require most urgently, an absolute majority of participants responded with the following answer: “Identification of possible uses and support with regard to implementation”.

The model is used to identify the Industry 4.0 maturity of a company using a standardised process.

The ACTUAL status is determined during the course of a maturity survey. Potential improvements and a TARGET maturity are then derived for the company based on the ACTUAL status and corporate strategy. The results from the ACTUAL & TARGET positions are incorporated into an anonymised benchmark database. This database is used both for the documentation of tests as well as for benchmarks whereby your own company can then be compared with other market participants in an anonymised manner. The I4.0 maturity model will be used by consultancy firms and companies following completion of training. Broad use of the model by trained consultants and companies results in a data volume & diversity with which benchmark analyses can be performed.

The evaluation takes place in 3 dimensions:

- Data Management
- Smart Factory
- Digital Transformation

24 sub-criteria will be evaluated, based on a scale from 0-10. Reference tables provide assistance for the assessment. A benchmark database on Industry 4.0 will be built up through evaluations!

www.reifegradmodell.at

Best practices / case studies of cooperation

Peter Heise, Deputy Head of Quality Assurance, KOWE CNC GmbH

„Through the „Digital Check – Starter Kit“ we were able to work out a concrete use case in a practical way in the company. By looking at a process together with an expert, I had the opportunity to observe him in his methodology and thus take away a lot for future surveys / current status observations. The heat map in particular provides clarity for the definition of measures.“

Daniel Plankensteiner, Managing Director, Plankensteiner Holzbau GmbH

„The results of the Digital Check give companies a new perspective on their operations. Enriched with basic considerations on product and market as well as the elaboration of improvement measures, the Digital Check offers the basis for the formulation of a digital strategy. In addition, the implementation of the Digital Check is excellently suited for further utilisation in funding applications related to digitalisation projects.“

Keywords

Digital maturity, data management, smart factory, digital transformation, Industry 4.0





Business Upper Austria - Medical Technology Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Medical Technology Cluster

The MedTech-Cluster is the main interface between industry, science and medicine. In total, the MTC's network consists of approx. 230 partners, whereby the MedTech-Cluster's aim is to bring together relevant players from the MedTech-industry in order to doing business together, i.e. becoming mutual cooperation partners in either regional, national or international projects. Since 2002, when the Cluster was founded, there has been a total number of 84 ideas, coming from MedTech stakeholders, which were turned into successful projects.

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Services

Fostering MedTech. networks for knowledge transfer, for exchange of experience, for sustainable cooperation on strategic and policy level as well as on operational (cross-sectoral) project level involving our members.

- Collecting and preparing information relevant to your business sector
- Press and public relations
- Knowledge transfer through hosting events, seminars and workshops
- Demand-oriented qualifications and training with specific courses and training
- Exchange of experience
- Cooperation projects
- Sales and internationalisation activities

Equipment / infrastructure

Basic overview of the technology background, equipment and infrastructure available:

- Exchange experience and knowledge & acquire skills

- Potential analysis
- Finding partners
- Environment analysis
- Cooperation
- Network
- Conquer markets
- Visibility

See [here](#) for more information

Best practices / case studies of cooperation

MED UP - Medical Upper Austria

- The primary goal is to establish an institutionalised form of cooperation so that the medical, research and industry sectors provide each other with impulses and are enabled to make their maximum contribution to strengthening Upper Austria as a health, science, business and technology location.

Leadproject MEDUSA

- The "Medical EDUcation in Surgical Aneurysm clipping (MEDUSA)" lead project, which is endowed with € 2.3 million, is to develop a hybrid simulator that offers a versatile - maximally realistic - training opportunity for neurosurgeons by combining the real and virtual worlds.

Medtech-Inkubator

- In the "MedTech Incubator" as a sector-specific start-up programme for MedTech start-ups, MedTech start-ups are supported in the implementation of their idea, the development of a regulatory strategy and a business concept tailored to it, as well as the acquisition of further funding.

Digital Health Call

- The goal is to use the latest digital technologies, artificial intelligence and supporting systems in a meaningful way in all areas of life, especially also in the health sector. The Digital Health Call provides funding for cooperative projects in the focus area "The Digital Patient Journey".

Keywords

Innovation, Cooperation, Projects, Network, Digital Health, Medical Materials, Start-Ups, MedTech-Inkubator, MedTech, Regulatory Affairs, Medical Engineering





AUS MHC WIRD BIC



Business Upper Austria - Building Innovation Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Building Innovation Cluster

The Building Innovation Cluster (BIC) is a cross-industry network to strengthen the innovative power and competitiveness of companies. The BIC is active in the areas of architecture and design, construction and related trades as well as furniture and timber construction. All companies, training and further education institutions and research facilities in Upper Austria whose activities and services are related to buildings and facilities benefit from this network.

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Services

For private sector & public sector:

Initiation of project groups for knowledge transfer, exchange of experience, sustainable cooperation at strategic and operational (cross-sector) project level, involving the target groups from the entire construction value-added network.

- Gathering and processing information relevant to your industry
- Press and public relations work
- Knowledge transfer through the organization of events, seminars and workshops
- Needs-oriented qualification and training with specific courses and training
- Exchange of experiences
- Cooperation projects
- Sales and internationalization activities

Core topics:

- New technologies for manufacturers and performers
- New processes for planners and operators
- New constructions and Materials4Future

- New uses for wood

Equipment / infrastructure

Basic overview of the technology background, equipment and infrastructure available: Department for cluster and cooperation efforts – [our service for SME](#) (YouTube).

Best practices / case studies of cooperation

- Application of open innovation formats, various CANVAS methods for product, project or service development, design thinking and LSP - Lego Serious Play (certified facilitator)
- Sustainable network partner, e.g. EDM
- Experienced project developer and partner for various European funding programs, e.g. Interreg (transregional, Central Europe, Alpine Space and Danube Transnational), Horizon 2020 and Horizon Europe.

Development of cooperative measures such as study trips, trade fairs and awards.

- www.moebel-austria.at
- www.designpreis.at
- www.ooe-holzbaupreis.at

Keywords

Mediator, networker, cross-industry, cooperation projects, open innovation, Lego Serious Play – LSP, European cooperation projects





Business Upper Austria - Automotive Cluster

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Automotive Cluster (AC)

The Automotive-Cluster (AC) of the Business Upper Austria agency is a cross-industry network for the automotive sector. We initiate, promote and coordinate successful cooperation between companies. As a hub connecting member companies, research institutes and decision-makers we are also committed to raising the international profile of Upper Austria as a centre of the automotive industry.

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Services

For private sector:

- business modeling, lego serious play workshops, design thinking workshops, AD testtrack, Startup collaboration

For public sector:

- business modeling, lego serious play workshops, design thinking workshops, AD testtrack

Equipment / infrastructure

Together with our national and international partners, we provide know-how and test infrastructure and support the testing, validation, research and implementation of autonomous commercial and transport vehicles and their various applications in modern transport systems. The focus is on automated and autonomous vehicles and mobility systems in the field of municipal services, logistics and heavy goods traffic.

[Learn more](#)

Best practices / case studies of cooperation

[AD testtrack](#)

- AWARD is paving the way for the roll-out of driverless transportation, whatever the weather conditions are. It will deploy safe and efficient connected and automated heavy-duty vehicles in real-life logistics operations.

[Startup collaboration](#)

- (Traditional) companies are often faced with the problem or challenge of putting their analog or established business models and products on the "digital transformation test bench" in the shortest possible time in order to rethink them and benefit from current technological and visionary opportunities from the "world of digitization" in order to derive new business models, services or products. One possible approach is the implementation of a Multi-Corporate Innovation (MCI) Challenge: i.e. through a controlled "open innovation" approach, the company comes up with completely new - never thought of before - and valid business cases in the shortest possible time.

Keywords

automotive industry, zero emission, sustainability, autonomous driving, operational excellence, smart mobility, special and commercial vehicle industry, testtrack, automotive training





Business Upper Austria - Department Cluster & Cooperation

Business Upper Austria - OÖ Wirtschaftsagentur GmbH, Department Cluster & Cooperation

Innovation through cooperation and competence - Upper Austria's innovation policy is based on these pillars. Cluster initiatives in areas of economic strength and cross-industry networks increase the innovative power of companies and make them strong enough to compete. The department for clusters and cooperation efforts at Business Upper Austria is responsible and home for eight cluster initiatives.

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Services

Fostering networks for knowledge transfer, for exchange of experience, for sustainable cooperation on strategic and policy level as well as on operational (cross-sectoral) project level involving the cluster initiatives and their members.

- Collecting and preparing information relevant to your business sector
- Press and public relations
- Knowledge transfer through hosting events, seminars and workshops
- Demand-oriented qualifications and training with specific courses and training
- Exchange of experience
- Cooperation projects
- Sales and internationalisation activities

Equipment / infrastructure

Best practices / case studies of cooperation

- Application of open innovation formats, e.g. various CANVAS methods for product-, project- or service-development and LSP – LEGO serious play (certified facilitator)
- Sustainable network partner, e.g. EDM and TCI.
- Experienced project developer and partner for a wide range of European funding schemes, e.g. Interreg (cross-regional, Central Europe, Alpine Space and Danube Transnational), Horizon 2020 and Horizon Europe.
- www.digitalregion.at is the information hub for digital transformation in Upper Austria. Here, small and medium-sized enterprises in particular can find support offers such as financial subsidies and advice on other services towards digitalisation. Best practice examples also provide inspiration for their own company.

Keywords

Intermediary, networker, cross-sectoral, cooperation projects, open innovation, LEGO serious play – LSP, European cooperation projects

