PLATFORM FOR **HEALTH**

ACHIEVE MORE
THROUGH RESEARCH & DEVELOPMENT

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UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA

Achieve more
with Austria's strongest research University of Applied Sciences

Successful businesses can tell you from experience: Every euro which goes into research and development pays for itself a thousand times over.

This is because innovations give those businesses a decisive competitive edge, generating revenue and securing jobs in the long-run.

The research location of Upper Austria is in the fast lane, and the University of Applied Sciences Upper Austria (FH Upper Austria) has evolved into a powerful engine. Austria's strongest research University of Applied Sciences offers four schools with around 400 professors and academic staff to innovative businesses.

Currently, over 300 projects in 16 specialist areas are being implemented. The practice-oriented topics range from IT (FH Upper Austria Hagenberg Campus), to Medical Engineering and Applied Social Sciences (FH Upper Austria Linz Campus), as well as Management (FH Upper Austria Steyr Campus), and Engineering (FH Upper Austria Wels Campus).

Perfect networking of the schools ensures that it is possible to achieve an optimal complete solution for each project.

The strategic programme "Innovative Upper Austria 2020 – Research. Business. Future" was accommodated by the Platform for Energy. This Platform's projects provide support in achieving strategic key objectives:

» **Upper Austria in 2020 is a state in which the health of the people and their inclusion in the social environment are of particular importance.** Upper Austria supports the development of new technologies to increase the efficiency and quality of the integrated health care.

» **Upper Austria in 2020 is a leading region in the sector of "personalised medicine".** Upper Austria is committed to prevention and supports the development of personalised technologies, which facilitate, particularly in an ageing society, increasing employability and extending the time spent active in the workplace, in the home and in society.

Dr. Josef Pühringer
Governor of Upper Austria

Mag. Thomas Stelzer
Vice Governor

Upper Austria has introduced the possibility for joint initiatives in the sectors of education – research – business through the strategic economic and research programme "Innovative Upper Austria 2020", in order to ensure that Upper Austria has a clear competitive edge.

The new emphasis on the health sector was implemented, as it is a field with strong growth potential. Particular topics such as quality of life and jobs for the elderly and medical equipment are characterized by continual expansion.

With the FH Upper Austria as a long-term, reliable partner in the sectors of research & development, the State of Upper Austria is provided with support in achieving the implemented, strategic key objectives.

Achieve more:
Cooperation made easy

With its 400 plus researchers, the FH Upper Austria is on hand as a flexible and reliable partner for businesses and institutions from industry and society when it comes to problems in research & development. The possibilities of cooperation are diverse:

» applied R&D projects with business partners

» academic research projects

» international R&D projects

» symposia and workshops

» students' bachelor's papers and master's theses

The project time frame can range from a few months to up to five years.

The FH Upper Austria´s R&D offers are aimed at businesses and institutions from industry and society.

On the one hand, this addresses those businesses which lack personnel resources or have limited financial resources for their own research and development activities (e.g. small and medium-sized companies).

On the other hand, solutions for companies which need support in specialist fields are also developed (e.g. in the form of specific devices). Above all, a joint project is, for the FH Upper Austria's cooperation partners, a financially straightforward and efficient undertaking.

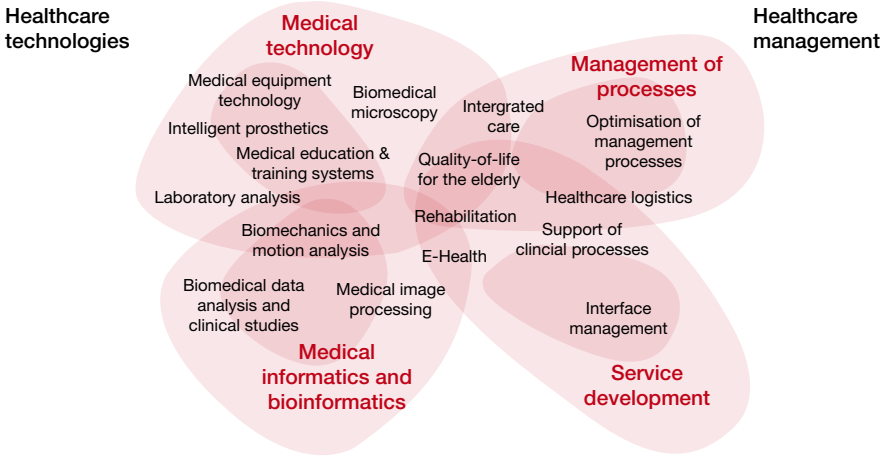
Geared towards the needs of the client, innovative solutions are developed, which can be put directly into practice.

Dr. Gerald Reisinger
University of Applied Sciences Upper Austria
President

Prok. FH-Prof. Priv.Doz. Dipl.-Ing. Dr Johann Kastner
University of Applied Sciences Upper Austria Research & Development
Chief Technology Officer

Achieve more
through technologies and management

The activities of the FH Upper Austria in the health sector are focused on its two fields of competence: health technologies and health management with their topic areas.



Special areas of application are, for example, equipment, medical product and service development, the ageing society, core clinical processes, and rehabilitation. The FH Upper Austria cooperates with research institutions and universities, product manufacturers, suppliers as well as health and social service institutes. Our researchers work in cross-faculty project teams and have access to modern, technical laboratory facilities.

The specialist areas of the Platform for Health come from the following sectors:

Medical technology

» **Hybrid simulators for surgery:** real-time simulators for personalised 3D phantom patients with real surgical instruments for medical education and training (Project: ReSSL – spine surgery simulator)

» **Movement measurement and prosthetics:** logging of individual movement kinematics and special analysis, simulations for the assessment of the musculoskeletal system and development of modern, high-tech leg prostheses (Project: Sensitive prostheses)

» **Medical equipment technology:** development and implementation of new technologies with manufacturers and suppliers for fixed and mobile medical products – MDD/AIMDD and IVDD (Project: Class I medical products for non-invasive tear film analysis)

Health informatics

» **Medical informatics – E-Health:** interoperability (IHE, Continua), HL7/CDA/DICOM, evidence-based medicine, mHealth, telemedicine, telecare

» **Bioinformatics:** biomedical data analysis, genome sequencing analysis, clinical studies, knowledge management

» **Medical imaging analysis:** image analysis/filtering, reconstruction, computer-aided diagnosis and surgery, model-based segmentation

Laboratories for medical technology

» **Microscopy, spectroscopy and industrial CT:** probe examination by means of confocal and fluorescence spectroscopy, photoacoustic methods and industrial CT; surface characterisation and manipulation via AFM

» **Chemical analytics:** quantification of substances by means of HPLC and GC with coupled spectrometric analysis for exact identification and chemical structure analysis

» **Measurement and sensor technology:** development and application of new measurement technologies and development of sensor solutions for biomedical technology

Process and quality management

» **Supporting core clinical processes:** standardisation of medical, nursing and administrative processes under economic and quality criteria

» **Medical performance comparison:** risk-adjusted comparison of medical quality, processes and costs with chosen patient groups across support boundaries

» **Data Mining:** merging structured and unstructured data from medical information systems and Data Mining (identification of correlations)

Healthcare research

» **Primary healthcare:** (further) development of outpatient, interdisciplinary, patient-centered, close to home healthcare concepts with curative and preventative focus (Projects: EVAMKO, PHC Rohrbach)

» **Health logistics/patient logistics:** connection and networking in the fragmented health system, arrangement of patients, objects and value streams (Projects: PALADIN, LOGSteri)

» **Cross-sector care:** cross-sector health-relevant information for a family doctor, hospital, provision of nursing services – for example vital data or information needed for care needs (Projects: eCare, PIN, Elgamon)

The ageing society

» **Ambient Assisted Living (AAL):** technical support systems for an independent life at home, whereby the support of health competence plays an important role (Projects: Inversia, Dalia)

» **Living arrangements for the elderly:** living independently for as long as possible in new living environments – tailored offers of support (Projects: EVALVIWO, Eval Sonnenwiese, EVALVIWO 2+)

» **Services for elderly people:** adapting to customer requirements, developing new services, devloping quality management for retirement and care homes (Projects: QM 2.0, TeleMoniCare)

Achieve more
through pioneering infrastructure

Technical laboratories

» Laboratory for Assistive Technology (Hagenberg Campus)
» Laboratory for Eye Movement Measurement (Linz Campus)
» Laboratory for Biomechanics of Muscle Appliances und Rehabilitation Technology (Linz Campus)
» Laboratory for Biomedical Data Analysis (Hagenberg Campus)
» Laboratory for Biomolecular Analytics (Linz Campus, Wels Campus)
» Laboratory for Electronic Circuit Development und EMV (Linz Campus)
» Laboratory for High-Resolution Microscopy (Linz Campus)
» Laboratory for Hybrid Simulators for Jaw and Spine Surgery (Linz Campus)
» Laboratory for Food Analytics (Wels Campus)
» Laboratory for Medical Software Development (Hagenberg Campus, Linz Campus)
» Laboratory for Surface Analytics (Linz Campus)
» Laboratory for Destruction-Free Material Testing (Wels Campus)

Research groups

» Motion Analysis (Linz Campus)
» Bioinformatics (Hagenberg Campus)
» Biomedical Data Analysis Lab (Hagenberg Campus)
» E-Health – Integrated Care (Hagenberg Campus)
» Sensitive Prostheses (Linz Campus)
» Heuristic Processes and Evolutionary Algorithms (HEAL) (Hagenberg Campus)
» High-Resolution Microscopy (Linz Campus)
» Hybrid Simulators for Surgery (Linz Campus)
» Intercultural Competence (Linz Campus)
» Knowledge Media & Engineering (Hagenberg Campus)
» Quality-of-Life for the Elderly (Hagenberg Campus, Linz Campus)
» Medical Informatics (Hagenberg Campus)
» Mobile Interactive Systems (Hagenberg Campus)
» Process and Quality Management of Health (Steyr Campus)
» Destruction-Free Material Testing (Wels Campus)

Achieving more:
current research projects

» **ReSSL** – Research group Surgical Simulators Linz / COIN (Cooperation and Innovation) development

» **Tomo3D** – Development of a 3D localisation microscopy system for biomedical applications / COIN development

» **PIN** – Patient-centered Integrated Network for care in old age / FFG (Austrian Research Promotion Agency) Benefit / partners: Wels Clinic, X-Tention Information Technology

» **Reha at home** / EFRE Regio 13

» **BIC** – surgery benchmarking / commissioned project / partner: gespag

» **KAL** – catalog of outpatient performances / commissioned project / partner: Federal Ministry of Health

» **Antibiotic prophylaxis** / commissioned project / partner: Salzkammergut Clinic

» **Preanalytic processes** / commissioned project / partners: LKH Steyr, KH Elisabethinen; Wagner Jauregg

» **WIRE** – Workflow for Image prefetching in Radiology for ELGA / FFG basic programme / partners: CAS – Computer Anwendungssysteme Gesellschaft m.b.H., Institut für CT- und MRT-Diagnostik am Schillerpark GmbH & Co KG

» **SESAM** – Self-Learning Search Algorithms for High-Res Mass Spectra / FWF Translational Research Programme / partners: IMP – Research Institute of Molecular Pathology

» **NanoDetect** / FFG FIT-IT / partners: Olympus Austria GmbH, Blutzentrale Linz, Trauma Care Consult GmbH

» **ARISE** – Advertisement Recommendation and Intelligent Scheduling for Elevators / FFG basic programme / partner: View Promotion GmbH

Achieve more: study and further education courses on the topic of health

School of Informatics, Communications and Media, Hagenberg Campus

Biomedical Informatics ..... M
Medical and Bioinformatics ..... B

School of Medical Engineering and Applied Social Sciences, Linz Campus

Medical Engineering ..... B M
Healthcare, Social and Public Management ..... M
Social Management ..... B

School of Management Steyr Campus

Process Management in Health Care ..... B

School of Engineering Wels Campus

Food Technology and Nutrition ..... B

Further education courses

Academic Advanced Nursing Practice (ANP)
Academic Care Manager
Integrated Care Systems
Intercultural Nursing Management
Socio-pedagogical Specialist Supervision

B – Bachelor's Degree Programme, M – Master's Degree Programme

At your service: Your contact partners

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