

# R&D Strategy

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# 1. Perspective and Objectives

As a provider of higher education, UAS Technikum Wien views its mission in the following terms: to fully integrate teaching and research by bringing them together within a scientific and economic context that is both national and international in scope. Research at UAS Technikum Wien is geared toward the challenges posed by a changing society and economy. All our R&D activities are geared toward relevance: the scientific issues we seek to address are derived from the needs of people, society, and the economy.

As a scientific institution, we take our responsibility toward society seriously and support European and Austrian initiatives with regard to “Responsible Science and Innovation”. We are convinced that without a responsible approach to science and research, there is no hope of societal progress, creating economic value, or shaping a sustainable future.

As far as UAS FH Technikum Wien is concerned, one of its core tasks is to cultivate standards of good scientific practice and to impart these to students and young academics – to reinforce this, it is a member of the Austrian Agency for Research Integrity (OeAWI).

The long-term framework for the R&D activities undertaken by UAS Technikum Wien is defined by the university strategy. This applies on a university-wide basis and contains a set of concrete and quantifiable objectives for R&D. The R&D strategy that is presented here sets out an R&D-specific framework of action to explain how UAS Technikum Wien should conduct its research activities and it outlines the context in which R&D efforts are to contribute to university-wide objectives.

We have set ourselves the following objectives for R&D at UAS Technikum Wien and these also serve as our motivation:

- Applied R&D contributes to the advancement of knowledge and facilitates knowledge-practice transfer within specific fields.
- R&D helps ensure that teaching is up to date and results in more highly qualified students (at bachelor's degree level, but particularly at master's degree level) by allowing them to participate in research-related projects.
- R&D enables the direct transfer of technology and knowledge into the economy, society, and politics.
- R&D assists with personnel development – i.e., by establishing, maintaining, and developing the competencies of our teaching and research staff.
- R&D increases the visibility of UAS Technikum Wien and its degree of influence within the national and international scientific communities, among universities and other research institutions and corporate partners, as well as among prospective students and staff. Moreover, R&D contributes to further cooperation with international partner universities and companies.

The R&D strategy coupled with a shared understanding of quality within R&D and the HR strategy for researchers are the framework on which our research activities are built.

## 2. General Conditions

The R&D activities of UAS Technikum Wien are based in the departments, which provide teaching staff for the programs of study and also the associated expertise required by these programs. There are four key areas of research across the various departments. Together with the new development area that is currently being established, these provide a strategic framework for the long-term research activities at UAS Technikum Wien that are financed by internal or third-party funds.

Research at UAS Technikum Wien is diverse and carried out in the context of

- Projects:
  - Internal university projects
  - Sponsored and cooperative projects
  - Commissioned R&D projects
- Student research projects: Bachelor and master's degree theses, internships, and courses/seminars with a strong "project" focus use scientific methods to address topical questions and problems that are drawn directly from issues encountered in society and by companies.

Research is often undertaken in association with partners: companies, other academic institutions and research bodies, and public and private organizations within society (at both a national and international level) all form part of our active research network.

It is the departments that are responsible for personnel development in the areas of teaching and research. The full integration of teaching and research at UAS Technikum Wien is lived out in practice by individual members of staff: Our full-time teaching staff develop and maintain their competencies through R&D activities and our full-time researchers are actively involved in teaching.

UAS Technikum Wien makes every effort to ensure that the general conditions and resources are in place to support sustainable R&D activities. The following concerns (among others) are central in this regard:

- The full-time teaching staff at the departments of the various study centers should be free to devote a significant proportion of their working time to research.
- The employment contracts of researchers working in key research areas at UAS Technikum Wien are drawn up on a long-term basis (to the extent possible).
- The university's own resources must be deployed in accordance with the basic principle of sustainability.
- We support cooperation between the departments and key research areas.
- We create opportunities for full-time staff so that they can engage in the following activities as part of – and in addition to – their project work: doctoral theses, scientific publications, and active participation in scientific communities.

With these purposes in mind and so that the strategic expansion of research activities may continue, UAS Technikum Wien is making every effort, in conjunction with the entire UAS sector in Austria, to secure sustainable funding from the federal government for R&D at universities of applied sciences.

In respect of the existing international, national, and regional funding programs, UAS Technikum Wien would like to see greater exploitation of what is already on offer, as well as an increase in commissions and funding from corporate partners.

### 3. Key Research Areas

Currently, there are four key areas of research across all the various departments, which together provide the strategic framework for research at UAS Technikum Wien:

- Embedded Systems & Cyber-Physical Systems (headed by Peter Balog and Peter Rössler)
- Renewable Urban Energy Systems (headed by Hubert Fechner)
- Secure Services, eHealth & Mobility (headed by Alexander Mense and Stefan Sauermann)
- Tissue Engineering & Molecular Life Science Technologies (headed by Dominik Rünzler)

In addition to these key areas of research, which have become well established over a period of many years, UAS Technikum Wien intends to significantly expand another cross-departmental and interdisciplinary development area:

- Automation & Robotics (coordinated by Wilfried Kubinger and Corinna Engelhardt-Nowitzki).

The clear focus on key areas helps ensure that the activities and funding are sustainable along with the expansion and development of our personnel and infrastructure, not just within but also across projects.

The heads of the research areas and the development area coordinators are responsible for the further development of their respective research fields at UAS Technikum Wien. In conjunction with the management of the research organization, they have strategic oversight of the R&D activities. Furthermore, together with the departmental managers, they are in charge of the relevant research staff and infrastructure.

Several aspects must be considered when expanding the existing key areas and establishing new ones: the relevance of the topic, the possibility of long-term funding or sponsorship at a national and international level, maximum integration with (master's) programs of study at the university, the reinforcement of existing strengths/harnessing of existing competencies, and the potential appeal for encouraging cross-departmental collaboration.

The key research areas are periodically reviewed as part of the R&D strategy process and refined as necessary. They are to be continually expanded and enhanced – beyond the confines of the departments. Cross-departmental research is strongly promoted so that researchers and students from other areas can play a role in expanding the key research areas and the new development area. This is a matter of participating in projects, utilizing the existing research infrastructure, providing funding for research staff, or feeding research results back into teaching.

## Embedded Systems and Cyber-Physical Systems

This is the largest relevance-based research field at UAS Technikum Wien and it covers every conceivable aspect of embedded systems and cyber-physical systems. This key research area is located within the Department of Embedded Systems and currently encompasses two areas of fundamental technology – the testing and verification of distributed embedded computer systems and embedded computer system design – as well as the application area of smart homes and assistive technologies.

A fourth area, which builds on our existing competencies in distributed embedded systems for real-time applications (reactive systems, cyber-physical systems), is being expanded all the time. This is the Internet of Things (IoT), which is primarily of relevance as a fundamental technology. For instance, IoT is the enabling technology for applications associated with smart homes, assistive technologies, eHealth systems, and intelligent production systems (Industry 4.0).

In addition to these, navigation & control (another fundamental technology) is being developed as a fifth area, primarily in view of the requirements of smart homes/domotics applications. Within this area, for example, distributed embedded vision systems are used for location finding, mapping, and obstacle recognition.

Thus, the key R&D area of embedded systems and cyber-physical systems encompasses the following fields and competencies:

1. Testing and verification of distributed embedded computer systems  
Deductive verification, model checking, static code analysis, simulation, testing & diagnostics, checkpointing, runtime verification, post-silicon verification, debugging, HW/SW co-verification, fault injection, tools for the verification & testing of embedded systems
2. Embedded computer system design  
Design space exploration, ESL design and system modeling, high-level synthesis, HW/SW co-design, SoC design, FPGA and ASIC design, embedded systems software design, multicore/task programming, OS for embedded systems, electronic design automation & tools
3. Smart homes and assistive technologies  
Wireless/wired smart home & building automation systems, active assisted living (AAL), service robotics, barrier-free human-machine interfaces, Design for All
4. Internet of Things  
Wireless & ad hoc networks, automotive networks, automation networks, smart sensors & actuators, distributed systems, real-time systems, clock synchronization in computer networks, interoperability aspects
5. Navigation & control  
Computer vision, digital signal processing, embedded control, machine learning, autonomous & cyber-physical systems

The safety, security, real-time, reliability, and low-power aspects are highly relevant to all five of the areas listed above (as well as being characteristic of embedded and cyber-physical systems in general).

## Renewable Urban Energy Systems

Until now, global energy supply has been dominated by fossil fuels (around 90% of energy sources) and, to a lesser extent, by nuclear power. Currently, renewable energy technologies account for just 10% of supply, although in Austria the figure is around a third. Climate change, the increasing scarcity of fossil resources, and dependency on regions that are in political crisis are the driving forces that are likely to culminate in an almost complete transformation of the global energy supply system.

From the point of view of technology, systems, the economy, and society, huge issues are posed by the expansion of renewable energies and their integration into urban energy systems, by smart grids for efficient energy distribution, and by the need to match demand to production from renewable sources. Densely populated urban areas with high energy densities represent a major challenge in this regard.

By working closely with university-based and non-university-based research bodies, the energy industry, and other Austrian companies, and by acting in an advisory capacity to politicians and public bodies, UAS Technikum Wien is constantly striving to expand R&D activities in this key area in accordance with the strategic direction set by the national and European innovations.

Competencies and fields of activity in the key research area of renewable urban energy systems:

- Systemic behavior of energy production components: Photovoltaics, small-scale wind power, electrical energy storage
- Renewable thermal and electrical energy systems and distribution grids (smart grids)
- Building technologies, urban technologies (smart city)
- New urban energy technologies (infrastructure for eMobility, etc.)
- Holistic ecological studies in the area of energy
- Sustainability performance measurement (technology assessment)
- Theoretical (modeling and simulation) plus experimental and metrological expertise (testing and monitoring)

Research infrastructure:

- The university's ENERGYbase site as a living lab: Passive house with photovoltaic façade, small wind turbine, heat pumps, buffer tank, and e-fueling station
- Operation of a small-scale wind power plant in Lichtenegg (Lower Austria)
- Photovoltaic/storage/smart grid lab for training purposes
- Various small labs for renewable technologies (solar/heat pumps, etc.)

In addition, representatives from the department are involved in various national and international networks of experts, e.g. as deputy director of the photovoltaic research program of the International Energy Agency (IEA) and by helping to coordinate the Austrian Photovoltaics Technology Platform.

## Secure Services, eHealth & Mobility

Health and mobility are some of the most basic needs of humanity, but they are also a major driver of innovation within the Austrian economy. In our information society, one of the key tasks is to ensure that people, organizations, and companies enjoy efficient and effective support through ICT-based, networked services.

This key area of interdisciplinary research is responsible for developing forward-looking concepts, technologies, and services in the area of eHealth and mobility, and making them available so that they can be embedded into organizational and societal ecosystems.

One of the core challenges here is to integrate the systems – which are currently heterogeneous – by means of interoperable interfaces and on the basis of international standards. In the same vein, innovative measuring instruments and sensors are increasingly having to be integrated as we move toward the “Internet of Things”. Mobile devices and applications have a key role to play because they serve as interfaces with users and, for this reason, human factors and usability make a substantial contribution. By combining wide-ranging sources of information (e.g. concerning environmental factors) with the use of existing databases (e.g. open data), holistic concepts can be produced (e.g. smart cities). In turn, this leads to the creation of additional knowledge and intelligent systems through the integration and analysis of data as part of these concepts.

When dealing with critical and sensitive data, security and safety are absolutely essential. This does not only apply to the core areas of eHealth and Mobility but also to the safeguarding of critical information infrastructures in general.

Competencies and fields of activity in the key research area of Secure Services, eHealth & Mobility:

- eHealth + mHealth technologies
- Interoperability & standards
- Security & privacy, analytics, and big data
- Medical, health, and sport applications

Competencies and research fields in the area of mobility

- Design and implementation of mobile and traffic services
- Finding solutions to urban challenges with a clear focus on mobility and by using integrative ICT systems
- Human factors in intelligent transportation systems
- Participative smart city concepts
- Data analysis, data integration, big data for smart cities

Competencies and research fields in the area of security & privacy

- Security & privacy frameworks for protecting sensitive data
- Concepts and technologies for protecting critical information infrastructures

## Tissue Engineering and Molecular Life Science Technologies

The hazards faced by the environment are as complex and diverse as those that pose a threat to human health. The only way to develop sustainable solution strategies is to acquire an understanding of the underlying molecular processes. The key R&D area of Molecular Life Science Technologies relies on the science of biochemistry to devise approaches that are based on molecular and cell biology techniques.

Tissue engineering makes it possible to replace damaged or destroyed tissue in patients by growing new functional tissue from healthy cells in the laboratory. In the field of regenerative medicine, it is primarily the stem cells that are stimulated to achieve regeneration. Cells can also be used as biosensors and detection systems for detecting hormonally active substances in the environment. With its reliance on cells and simple organisms such as bacteria or algae, ecotoxicology makes it possible to estimate the level of risk posed by chemicals in the environment. Within this context, molecular biology techniques are used to ascertain the effect of undesirable substances on people and the environment.

Competencies in the area of Tissue Engineering & Molecular Life Science Technologies:

### 1. Tissue engineering

- Biomaterials as bioactive 3D scaffolds with modifications for improved cell adhesion
- Bioreactors for the mechanical stimulation of muscle, tendons, ligaments, and cartilage
- Signal transduction/mechanotransduction models in 3D cell culture for optimized control of functional tissue regrowth
- Cellular disease models for reducing animal experimentation

### 2. Regenerative therapies

- Ascertaining how extracorporeal shockwave therapy works on skeletomuscular diseases and chronic wounds
- Using adult stem cells in cell therapies

### 3. Cell culture methods and molecular biology methods

- Methods for isolating primary cells from tissue
- Differentiation of adult stem cells in 2D and 3D cell culture systems
- Isolation and quantitation of proteins and nucleic acids
- Genome editing using the CRISPR/Cas system

### 4. Ecotoxicology and environmental chemistry

- Cell culture assays for quantitating hormonally active substances in environmental samples
- Ecotoxicological test methods

### 5. Miniaturization

- Design and development of cell-based microsystems and biochips

## Automation & Robotics

Automation and robotics are important core areas for developing efficient and versatile production systems that are designed to save resources. This calls for intelligent mechatronic systems that are not only user- and environmentally friendly but also powerful and adaptive. The driving force here is the digitization of plant, machinery, tools, workpieces, products, and product components. Innovative automation and robotics solutions combine mechanical engineering expertise with advanced sensor concepts and increasingly powerful algorithms. Networking and communication over the Internet and the ability to exploit the data obtained are facilitating all kinds of new technical concepts and business models. This “fourth industrial revolution” continues to generate a large number of research questions in the areas of system architecture, security, and direct collaboration between humans and machines.

Competencies and fields of activity in the area of automation and robotics:

- Digital factory, Industry 4.0, smart manufacturing
- Intelligent automation of complex processes
- Production system integration and optimization
- New production methods (e.g. generative production)
- Industrial robotics, mobile and service robotics
- Mechatronic systems in automation and new mechatronic concepts for sensors and actuators

The development area of automation and robotics concentrates on application-oriented research projects that are aimed at addressing the following issues:

- Advanced automation: smart manufacturing in the digital factory, open- and closed-loop control of mechatronic systems
- Innovative sensor concepts: imaging sensor technology, intelligent sensors, multimodal sensor networks, and sensor fusion
- Robotics: specific issues from the fields of industrial/mobile/service robotics, collaborative robotics, intelligent industrial work assistants, cognitive robotics, and human-machine interfaces
- Generative production methods
- Materials engineering
- Industrial operations management: Business models, ontologies, and architectural models for the digital factory; integrated process simulation, control, and optimization

Through sponsored projects and with the support of its Austrian industrial partners, the university has managed to build a highly effective infrastructure for teaching and research. The university operates its own digital factory, which contains robot systems and hardware components from corporate partners, and software components for control and simulation. Having deliberately chosen a heterogeneous system landscape for the digital factory, the researchers are able to undertake highly realistic studies (geared particularly toward SMEs) and are making advances in the fields of automation solutions and robot systems.

## 4. Quality Development

By referring to the strategic objectives for R&D at UAS Technikum Wien, it is possible to identify instruments and indicators so that these objectives can be met/measured. The overarching contribution that R&D must make to the general objectives of UAS Technikum Wien is defined and measured as part of the university's overall strategy.

The fundamental instrument undergirding the R&D activities takes the form of third-party-funded projects and the internal processes that the university uses to support these. Third-party-funded projects are responsible for facilitating most of the R&D activities that take place at UAS Technikum Wien and they also make it possible to recruit and develop researchers and to expand and maintain the research infrastructure. In the case of sponsored projects, the approval and review processes commonly adopted by sponsors provide an external framework that safeguards the quality of R&D and its ongoing development. Consequently, third-party funds are both a major input factor and also the most important output indicator.

In addition to these, a number of other indicators exist that reflect the objectives and diversity of R&D at UAS Technikum Wien. These are summarized schematically in the table below. The details of third-party-funded projects and many of these indicators are published annually in the intellectual capital report produced by UAS Technikum Wien.

No.	Quality objectives of R&D	Instruments	Indicators
1	R&D helps ensure that courses and teaching are up to date and of the requisite quality	Ongoing development of programs of study (study program evaluation process)	Courses/seminars, areas of specialism, bachelor's and master's degree theses on current topics arising from R&D activities New programs of study based on R&D activities
2	Teaching and research staff acquire/hone their competencies in the course of R&D projects	R&D HR strategy Career path for researchers Personnel development within departments	Number of staff actively involved in R&D projects FTE ratio for R&D and number of staff involved in teaching and R&D Proportion of teaching and R&D staff with a doctorate
3	Teaching and research staff are actively involved in scientific communities and in the communication and transfer of R&D results	Research communication Technology transfer and exploitation Networks and internationalization	Publications Patent applications Collaboration and participation in: Networks and platforms, conferences and symposia, standardization and standards committees Foreign placements for researchers Participation in public-facing events for the purpose of disseminating scientific findings

## 5. Personnel

In May 2015, UAS Technikum Wien was the first university of applied sciences in Austria to be granted use of the “HR Excellence in Research” logo of the European Commission. This award, which is part of the EURAXESS initiative, is conferred on research organizations that have a clear strategy for implementing the “European Charter for Researchers” and the “Code of Conduct for the Recruitment of Researchers”.

In the fall of 2014, UAS Technikum Wien adopted an R&D HR strategy for researchers. This sets out concrete measures for implementing the principles of the charter and code of conduct, as well as providing support for this process. An action plan forms an integral component of this document. The R&D HR strategy is viewed as part of the university's personnel development strategy and provides researchers at UAS Technikum Wien with a career framework.

The principles of non-discrimination, equal treatment, and equal opportunities are also enshrined in the university's strategies. Moreover, UAS Technikum Wien was the first higher education establishment in Austria to adopt a code of conduct that applies to all stakeholders and which – in addition to covering everything from interactions and conduct, relationships and interests, as well as trust and the responsible use of resources – also contains a section on scientific integrity.

Good scientific practice is the prerequisite for effective academic endeavors that are able to achieve recognition within a competitive international environment and that is why UAS Technikum Wien supports the work of the Austrian Agency for Research Integrity. All researchers are required to adhere to the standards of good scientific practice that apply within their own academic field, to clarify any doubts they may have concerning the applicable standards at their own initiative, to refrain from academic malpractice, and – in the event of malpractice – to rectify this immediately.

As part of its personnel development measures aimed at young researchers, UAS Technikum Wien is particularly committed to supporting the theses of its own staff with a view to increasing the proportion of teaching and research personnel with a doctorate. At UAS Technikum Wien, doctorate programs in partnership with other universities are already a well established tool for enhancing the qualifications of academic staff. This instrument is to be developed further in the future so as to increase the proportion of staff with a doctorate. With this in mind, efforts will also be made to establish institutional partnerships. So as to enable more researchers to undertake a doctoral thesis, an internal funding instrument was introduced at the university in the academic year 2014/15. This is to be further developed and expanded in the future.

In order to guarantee sustainability for individual members of staff, R&D teams, and departments, the governing board and president's office of UAS Technikum Wien made a commitment back in 2012 to employ more researchers in the key R&D areas on open-ended contracts. Step by step, this policy has been consistently implemented ever since.

At UAS Technikum Wien, researchers (including those of a tender age) are involved in teaching. Thanks to the variable teaching workload, which can – over the years – be flexibly arranged in consultation with the relevant departmental management, virtually everyone involved in research also has a teaching role.

Fundamentally, we attach great importance to team-based research, achieving critical team sizes, and team cohesion – in many research areas also across several departments.

## 6. Technology Transfer and Exploitation

At UAS Technikum Wien, research results are exploited and technology is transferred in all manner of ways: through cooperation projects, R&D activities that are commissioned in conjunction with and on behalf of corporate partners, innovative professional development offerings by the Technikum Wien Academy that are tailored to the needs of companies and other institutions, and student projects that address issues raised by companies. By pursuing these activities (and others), UAS Technikum Wien is constantly engaged in the transfer of technology within the various organizational units.

Technikum Wien GmbH is responsible for providing and overseeing customized services for companies, ranging from commissioned R&D projects through to innovative professional development opportunities. In this way, it functions as a central and flexible point of contact that is able to coordinate the technical expertise of the various university departments by creating offerings for companies in accordance with requirements. In line with the general organizational conditions, teaching-related activities and sponsored research projects of a strategic nature are primarily embedded in the programs of study/within the departments, as described in section 2. In the future, the existing technology transfer activities are to be intensified, various competencies are to be combined, and new target groups are to be reached as well.

Although the university's core tasks do not include the direct marketing of research results, they certainly do involve establishing the general conditions that will be conducive to the following: the creation of scientific publications, the protection of resulting intellectual property rights, the integration of the findings into academic teaching and further research, the exploitation of the results in conjunction with and by companies, and the equitable transfer of IPR to partners – without imposing unnecessary restrictions on the freedom of teaching and research. To this end and in cooperation with Austria Wirtschaftsservice GmbH (aws), UAS Technikum Wien creates the necessary general organizational conditions and provides its research organization and project service with the necessary expertise to ensure that the results of scientific research by staff and students are handled in a professional manner.

UAS Technikum Wien (which – in terms of patent applications – is one of the leading universities of its kind in Austria) has defined a set of internal standards for regulating intellectual property rights and, in particular, employee inventions in employment contracts and contracts for work and services. These help the university to deal professionally with IPR issues that arise in the context of projects with other partners and companies, and they facilitate clear decisions as far as marketing issues are concerned. The university is also careful to consider the interests of students in matters relating to exploitation by constantly striving to develop general conditions that are clear and beneficial. Entrepreneurship initiatives and start-up and spin-off measures will be further strengthened in the future by working together with the Technikum Wien Alumni Club, which already plays an active part in awareness raising and sensitization.

## 7. Networks and Internationalization

UAS Technikum Wien firmly believes that major societal challenges and issues relating to the future can only be addressed in a sustainable way if multiple players come together and cooperate. With this in mind, many members of staff demonstrate their commitment by actively participating in networks, platforms, and national and international committees, and by playing a key role in shaping these. For example, they are involved in relevant national and international professional associations and interest groups, standardization committees, program/organizational/reviewing/steering committees for scientific conferences, editing committees of science and technology journals, or serve as experts for national and international R&D funding bodies. Not only does the university play an active and committed role within scientific communities, but also at the points where science, the economy, and politics meet.

UAS Technikum Wien is a partner in the FEEI network (Austrian Association for the Electrical and Electronics Industries) and, since its foundation in 1994, has been making the most of this opportunity to integrate its academic expertise with issues that are of importance to the corporate world. As far as the university is concerned, this leads to superb educational products and highly relevant research of an excellent standard. For the companies, it results in sustainable technology transfer and specific opportunities for putting the research into practice.

As regards matters of internationalization, the strategic direction of UAS Technikum Wien is set out in its internationalization strategy. As part of this, the university is deepening and expanding cooperation with a number of first-rate partner universities that have been carefully selected with a view to forming long-term strategic partnerships in the areas of staff mobility, teaching, and research.

The aim here is for the research and internationalization strategies to work in unison because it is only within the context of long-term strategic partnerships that the true potential of cooperation with (national and international) universities, research organizations, and companies can be progressively exploited. UAS Technikum Wien is already successfully involved in international research funding programs. Over the coming years, it will increase its efforts to procure international third-party funding and will seek to play an increasingly active role in creative processes at an international level.

## 8. Science Communications and Dialog with Society

When it comes to application-oriented research, a great deal of importance is attached to the communication and dissemination of the results. Far from being restricted to conventional scientific publications, this involves a whole range of publication and communication channels that are of relevance to specific disciplines and target groups. Researchers at UAS Technikum Wien are involved in communicating research in many ways and, as an institution, the university makes every effort to protect the right of researchers to communicate their research.

To ensure that its R&D activities are consistently strengthened, the university is committed to continually improving the general internal conditions and funding opportunities for publications. This includes not only publications linked to sponsored projects (which cannot be funded from the project itself), but also other research fields that are not directly associated with third-party-funded projects and which, in many cases, do not require vast sums of money and equipment. It is in these areas in particular that UAS Technikum Wien also wishes to intensify its research communication activities.

In addition, the university supports the efforts surrounding open access publications, particularly where these have been made possible through public funding. As a signatory to the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, a

member of OANA (Open Access Network Austria), and one of the institutions that supports the DOAJ (Directory of Open Access Journals), UAS Technikum Wien is actively involved in creating free and unrestricted access to scientific information.

UAS Technikum Wien recommends that its researchers release their own publications and other appropriate research results via the open access route whenever possible, and that they make their previously published work available in this way, provided that there are no legal restrictions to the contrary. Open access journals represent a suitable publication channel in this regard, particularly if they are listed in the Directory of Open Access Journals and provided that they are appropriate and have peer review processes in place for the research field concerned.

In addition, UAS Technikum Wien is committed to the ongoing communication of technology and research to the public in all kinds of ways in order to foster an interest in and understanding of technology within society and, in turn, create the next generation of scientists. Alongside the conventional formats of public meetings and events, the university hosts activities for children and schoolchildren and is involved in ad hoc formats such as the "Lange Nacht der Forschung" ("Long Night of Research") or the Vienna Research Festival so that the research results can reach as wide an audience as possible.

Over the next few years, dialog and information sharing with society will become increasingly integrated into the university's research activities through the Open Innovation and Citizen Science projects. To this end, UAS Technikum Wien supports the Responsible Science initiative so that participative research models might become more firmly established within the Austrian innovation system.