

Transfer Strategy of the University of Münster

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A The concept of transfer at the University of Münster

Science takes place in society. The creation of knowledge and its transfer to society is a central component of our public culture. The University of Münster sees itself as an institution of civic life and regards transfer as one of the central performance dimensions of higher education. It views transfer as a demonstration of *civic responsibility* and aims to do justice to it in all sectors of society. Research and teaching, the two other fundamental performance dimensions of academia, exist both as ends in themselves and as the motor of social progress.

With the transfer of scientific knowledge, the University of Münster meets the public's justified expectation to be able to participate in science. To this end, the University strives to involve the entire spectrum of civil society. It provides subject- and target-group-specific offers and works to continually develop and intensify its transfer activities. Scientifically generated knowledge assumes many forms and must be communicated to society in a variety of ways. The University of Münster therefore regards *communication* of knowledge as a fundamental aspect of transfer.

Scientifically generated knowledge reacts to societal changes, and its transfer represents a key source of innovation for society. Whether as knowledge transfer, technology transfer or in the form of spin-offs, *innovation* is a central aspect of the University's transfer activities, with which it aims to responsibly address the dynamics of social change and global challenges.

The University of Münster recognises the socio-cultural relevance of scientific methods. Modern societies are pluralistic; they allow for a broad spectrum of opinions and interpretations of the world. In the face of increasing scepticism towards science, universities must stand up for a mutually shared understanding of knowledge and truth. Rational judgement and critical discussion are not only indispensable aspects of the scientific field, they are also an essential prerequisite for any pluralistic and democratically constituted society. The University of Münster is therefore committed to promoting scholarly values through participatory formats. It does this in awareness of its own historical and cultural background. To meet this task, society and academia must mutually trust one other. Consequently, promoting public *participation* in science is another central aspect of the University's transfer activities.

To achieve these goals, the University of Münster shares the knowledge generated by its members in sustainable partnership with businesses, schools and other social institutions. In this way, it is productively committed to the development of Münster and the surrounding region, as well as engaging in international exchange. The University of Münster aims to optimally prepare its students for successful careers by developing suitable teaching formats. Practising the transfer of theoretical fundamentals and academic qualifications in various fields of application helps provide graduates with considerable flexibility in terms of content and a strong capacity for innovation, which should prove beneficial in their future professions. The University of Münster understands that its graduates, who are the ones who will responsibly and competently convey their mindset of scientific scholarship to society, are, in fact, its most important transfer achievement. Only in this way can science fulfil its function for society in the long term.

Sustainability (also in the sense of the Sustainable Development Goals (SDGs)) is a central criterion for all transfer activities at the University of Münster. As an intersectional issue, it permeates all transfer-related fields of action and is purposefully integrated into the University's sustainability strategy.

The University of Münster embraces and promotes transfer as a form of cooperation and communication between the scientific field and society. In return, its transfer activities also impact *the University itself*. They are the subject of reflection and discourse on the responsibility of academia in society, and they shed light on how instruction and communication are shaped on both an individual and institutional level.

The transfer activities of the University of Münster are an essential element of the concept "**Excellence. Integrated**" and correspondingly influence the performance dimensions of research and teaching. The University of Münster has identified this feedback loop in the six key fields of action with respect to transfer and has instituted measures to further develop the desired integration of its three central performance dimensions.

The University of Münster is one of the largest and most successful universities in the field of **teacher education**. Consequently, teacher education plays a special role in the context of the University's transfer activities. The University of Münster regards teacher training as a special form of transfer and promotes it accordingly. It sees its student teachers as multipliers of knowledge and science who will serve as tomorrow's guarantors of trusted knowledge. The University of Münster has defined an appropriate course for advancing a scientifically based teacher-training concept that integrates empirical research – also with orientation towards research-based learning. Excellently educated teachers are important multipliers for communicating scientific attitudes to pupils in schools and thus to future generations of our society. University instruction enables students to gain a subject-based and interdisciplinary understanding of science and thus ensures science-oriented teaching in schools. In order to present this transfer in a sustainable, qualitative manner, the University of Münster offers in-service training seminars to teachers who are already employed in schools.

The University of Münster has identified **six fields of action** in connection to the performance dimension of transfer:

- Science communication
- Lifelong learning
- Entrepreneurship
- Technology transfer
- Citizen science
- Culture

These fields of action should not be regarded as separate from one another. Rather, concrete *projects* usually comprise aspects from multiple fields of action. In addition to its overarching transfer goals, the University of Münster also pursues specific goals within these fields of action. Moreover, having identified these specific fields of action helps the University fulfil its tasks of governance in terms of *institutional development*.

Two overarching goals of the University of Münster with respect to transfer are:

Goal 1 Assume its social responsibility

Goal 2 Closely link the performance dimension of transfer with the performance dimensions of research and teaching

B Fields of action

The fields of action below do not represent clearly delineable areas of transfer. As a rule, there are aspects of transfer measures which can be assigned to multiple fields of action. Concerning specific projects, one should view these fields of action as dimensions or functions. With regard to specific goals and the requirements of governance, it makes sense to subdivide the performance dimension of transfer into the six fields of action as follows.

Field of action 1: Science communication

Public education lies at the heart of public understanding of science. Consequently, the task of providing education is a goal that underlies all fields of action with respect to transfer. Universities are tasked with disseminating knowledge and increasing society's understanding of science. This includes communicating knowledge in an appropriate and target-group-specific manner so that non-specialists (of the respective field) are able to understand subject-specific viewpoints and findings. The museums of the University of Münster are conceived and operated accordingly and serve to advance the University's educative mission. Decentralised institutions (e.g. CiMIC or the science communication departments in research partnerships) also make an important contribution in this area. The suitability and effectiveness of external science communication requires ongoing research and evaluation. Furthermore, the University of Münster recognises science communication as a future-oriented **research topic** that must be addressed in an interdisciplinary manner.

Interdisciplinary collaboration also depends on internal science communication. The University of Münster regards interdisciplinary communication as an integral form of science communication as it plays a crucial role in the success of multidisciplinary research networks.

Science communication allows the public to participate in discourse on scientific research. This is a task shared by universities and researchers alike. In view of the central role of science communication in the performance dimension of transfer, policymakers and funding providers are calling for intensive professionalisation and promoting **advanced qualification measures for all status groups**. With respect to communication skills, the aim is to train researchers and academics in direct, target-group-oriented communication. This includes introducing them to the fundamentals of communicating science-related information and taking positions on controversial topics. Training researchers in media competence entails preparing them for the inherent logic of various media and helping them find suitable ways to engage with responsible science communication staff. It is important that the scientific field reflects on its self-image and the role of researchers in the context of scientific competence. Moreover, researchers should be aware of the role that their own subject culture plays. The goal should be to raise awareness of what an

appropriate relationship between science and society can look like. Self-reflection is promoted by sharing empirically and theoretically substantiated knowledge about science communication with others. Those who talk to others about their own research oftentimes learn something about themselves. Therefore, science communication is also a starting point for improving the competence and expertise of the research staff.

Qualification measures in science communication are closely related to the teaching-learning perspective of higher education didactics (especially with respect to communication and science competence). This is due to the central role of communicating subject content in a target-group-appropriate manner and reflecting on research and subject cultures within the framework of research-based learning. The University of Münster aims to address specific formats in this regard (e.g. science on tap, blogs, round tables) and integrate competence-building (at all career levels) on the theory and practice of science communication into its professional qualification structures.

The University of Münster recognises the central dimension of transfer as demonstrated in its commitment to train outstanding **teachers**. These prospective teachers are the ambassadors of scientifically generated knowledge and scientific attitudes in schools and serve as central multipliers for future generations. Students in teaching degree programmes and currently employed teachers are thus the main addressees of the University's transfer strategy and its efforts to find adequate forms of science communication. The University Centre for Teacher Education (ZfL) assumes a prominent role in the realisation of these goals. However, since the University of Münster cannot achieve this goal alone, close coordination with the municipal government and policymakers in general is necessary to create suitable framework conditions. In this context, the didactics of the individual subjects unfold their specific transfer potential by contributing their research results to the scientifically based innovation of educational institutions.

By engaging in discourse with civic society (e.g. NGOs, churches or faith communities) and their social institutions (e.g. political parties, professional associations, etc.), the University of Münster aims to strengthen the rational trust that citizens place in science. Indeed, science communication is a dialogue – not a one-way street.

- Goal 3 Expand and cultivate the science communication network within the University of Münster
- Goal 4 Develop science communication formats for society which are target-group and topic appropriate, especially in the school context
- Goal 5 Anchor science communication in academic programmes of continuing education and professional training

Field of action 2: Lifelong learning

Modern societies are characterised by diverse contexts and a multitude of life plans and paths. At the same time, they are highly dynamic entities, shaped in complex ways by social factors, technological innovations and leaps in knowledge. To adapt to such a modern society, citizens must constantly educate themselves further, acquire new scientific knowledge and adapt their own skills and abilities to changing needs and circumstances. With its lifelong learning concept, the University of Münster aims to provide a comprehensive, differentiated range of continuing education courses tailored to the specific needs of the participants. It is constantly updating, expanding and improving these courses, and in so doing, takes into account the trend towards individualised educational paths against the background of dynamic and innovative processes. Its goal and aspiration are to provide educational opportunities that meet the requirements of today's knowledge society with its differentiated and specialised objectives.

The founding of the non-profit organisation WWU Weiterbildung in 2006 represented a key step in the development and consolidation of the University's knowledge transfer activities. WWU Weiterbildung offers master's degree programmes, certification courses, teacher training and seminars within the range of subjects offered at the University of Münster. In addition, individual faculties offer their own subject-specific continuing education programmes, e.g. JurGrad, which organises the continuing education programmes offered by the Faculty of Law at the University of Münster).

All continuing education programmes at the University of Münster are based on the **research focuses** of the participating institutes and centres. Only in this way can the University ensure that its programmes and courses always correspond to the current state of research. Practical relevance and interdisciplinarity are further cornerstones of the continuing education measures at the University of Münster. By consistently orienting the programme to the needs of the target groups, the University can ensure that the offered courses are successful in the long term. In line with the principles and goals of continuing education at the University of Münster, the faculties and departments provide the impetus for developing new continuing education courses.

Continuing education is not only directed outwards, but also takes place *inwards*, especially with regard to key cross-sectional topics. For example, courses on **sustainability** in research are offered internally by the Center of Interdisciplinary Sustainability Research (ZIN) as one of the central research institutes at the University of Münster, or in teaching through specific continuing education courses offered by the Centre for Teaching in Higher Education (ZHL). These enable researchers and instructors at the University to address issues of sustainability in research and teaching.

In addition, the University of Münster offers specific professional training seminars in various transfer-related fields of action (e.g. in science communication, entrepreneurship and technology transfer) which enable staff to address the ever-changing expectations that society places on science.

Finally, the University develops specific continuing education programmes at centralised and faculty levels that offer graduates and staff alike improved professional and career opportunities.

Transfer Strategy

- Goal 6 Adapt and expand centralised and faculty-level continuing education courses
- Goal 7 Develop targeted continuing education courses tailored to the needs of a changing society
- Goal 8 Connect new research findings and innovative teaching formats to the needs of citizens

Field of action 3: Entrepreneurship

The University of Münster sees the creation of knowledge and its transfer to society as part of its civic responsibility. This includes promoting entrepreneurship among its students and researchers across all disciplines. With the aid of spin-offs, the general public and the business sector can make use of and benefit from scientific findings.

REACH was established at the University of Münster for the purpose of strengthening entrepreneurship in general and providing consultation to prospective entrepreneurs. To this end, the **Innovation Office (AFO)** raises awareness of these objectives with start-up-related General Studies courses (“Transfer School”). By focussing and bundling start-up support, the University of Münster can provide start-ups with needs-based and individually tailored support. This creates a productive environment for start-ups and increases the effectiveness of start-up support. With REACH, the University of Münster wishes to sustainably support entrepreneurship in the long term by further developing existing transfer instruments and establishing new ones to make better economic use of research findings. The aim is to sustainably anchor an entrepreneurial mindset and a start-up culture at the University of Münster as its third performance dimension. With this form of knowledge transfer, the University of Münster is contributing to social innovation. A specific focus is strengthening support for science-based start-ups from within the University of Münster. These support services are carried out in close cooperation with regional stakeholders (Münster University of Applied Sciences, Digital Hub münsterLAND and the University of Twente). A key element in this regard is the feedback loop, with which acquired knowledge is applied to research and teaching at the University of Münster.

- Goal 9 Strengthen entrepreneurship and a start-up culture at the University of Münster
- Goal 10 Intensify science-based start-ups
- Goal 11 Apply start-up experience to teaching activities and use the feedback loop to generate new research impulses

Field of action 4: Technology transfer

The dynamics of modern society are based in multiple ways on scientific innovations that are made available to the public in the form of knowledge and technical advances. In view of the Sustainable Development Goals (SDGs) and the global challenges they address, the development and transfer of technological innovations represents an indispensable contribution by the scientific field to the advancement of society.

MEET, for example, is a central research facility of the University of Münster. It offers an optimal environment for knowledge transfer as findings from basic research in the field of lithium-ion batteries are examined and developed with regard to their scalability for larger-scale production. Consequently, MEET promises to play an important role in the future when such processes are developed on a large industrial scale at the FFB, a research institution at Fraunhofer devoted to battery cell production.

Another prominent example is CeNTech (Center for Nanotechnology), founded in 2003 as a public-private partnership. In this state-of-the-art facility, researchers and entrepreneurs work hand-in-hand in close physical proximity to ensure optimal transfer of research findings to industry.

Beyond the development of technological innovations and their transfer, the University of Münster is committed to fulfilling its legal mandate to promote the use (and in particular the protection and **patenting**) of research findings. It actively participates in the intellectual property (IP) network funded by the federal and state governments and has created a patent consulting infrastructure which sustainably anchors patent support at the University of Münster. Furthermore, the University of Münster is a shareholder of the patent utilisation agency PROvendis GmbH.

The University of Münster carries out numerous public awareness measures and information events on IP measures and patenting. However, the advice and support provided in this context is not limited to patents. Due to high demand, it also extends to all areas of intellectual property. The **patent strategy** of the University of Münster serves to anchor this support infrastructure for inventors. It has drawn national and international attention, especially because of the integrated ethical and social criteria which were created to ensure that patents are handled in a socially responsible manner.

The topic of patents is firmly established in **academic instruction** through the University's "Transfer School" and departmental courses. With its many continuing education courses and events where patent scouts can share experience, discuss concrete problems and new developments, and improve the workflow at universities, the University ensures optimal networking opportunities with PROvendis GmbH and other transfer offices in the state of North Rhine-Westphalia. This process helps all stakeholders continually optimise their patent and transfer activities.

Goal 12 Strengthen and optimise the transfer of scientific innovations

Goal 13 Anchor the topic in research and teaching

Field of action 5: Citizen science

Citizen science enables the public to participate in scientific processes and projects in a variety of ways. The University of Münster recognises its social responsibility in this area and understands that expanding formats that allow participation by the public is an important tool to strengthen society's trust in science. Public input and suggestions, along with the willingness to conduct joint research and present it publicly are key prerequisites for real-world learning and research (e.g. in the museums of the University of Münster). Citizen science aims to increase social cohesion. To achieve this, the University is pursuing a co-creative approach and developing topic- and target-group-specific participation formats. The spectrum ranges from medicine to the StadtLabor (UrbanLab) and Digital Humanities.

Citizen science at the University of Münster is shaped by projects that attract superregional attention (e.g. SenseBox or OpenSenseMap, jointly designed exhibitions or Münsterland Expedition). These projects introduce real-world learning and research both with a regional and a global perspective (based on the approach "think globally, act locally"). In this context, unconventional citizen science research communities offer fertile ground for innovative projects in all scientific disciplines and for the development of new research topics. In the future, these participatory formats will focus on reaching out to teachers and students as a target group.

The University of Münster is constantly expanding internal networking (e.g. through citizen science workshops) and creating further incentives (e.g. prizes for citizen science projects). In addition, a catalogue of quality assurance criteria, originally based on the Austrian quality criteria catalogue for citizen science projects, is steadily being developed further. In this way, the University of Münster takes into account the dynamics and diversity in this field of action. At the same time, it creates the basis for assessing to what extent it has achieved its transfer goals in this field of action.

Citizen science projects are often financed by third-party funding providers. The ability to secure third-party funding and to develop the participatory design of new research projects is crucial in view of currently emerging funding formats. The University of Münster considers it an important task to establish and expand the corresponding advisory services (e.g. as part of the academic instruction provided by the Transfer School) as well as the in-house and external continuing education courses at the University of Münster.

- Goal 14 Develop topic- and target-group-specific participation models
- Goal 15 Anchor citizen science in teaching and research
- Goal 16 Establish a sustainable advisory structure for citizen science projects

Field of action 6: Culture

The interaction between science and culture is an essential element in the transfer concept of the University of Münster, for it is there that different perspectives on and approaches to the world can be conveyed. To this end, the University has created the position of University Curator, whose task it is to strengthen and develop the University's museums, gardens and collections as an infrastructure for research, teaching and transfer.

The University of Münster promotes the development of innovative **museum education formats** which also play an integral role in research-based learning. Museums, gardens and collections serve as permanent extracurricular learning venues and offer diverse opportunities for exchange between teachers and students. School-oriented programmes are developed in a participatory fashion which strengthens the connection between practical teaching and current research. As a format for lifelong learning, these programmes are intended for citizens of all ages (from Q.UNI to the Senior Guest Programme).

By establishing an IT-based central collection management system, the University of Münster is pushing ahead with the digitisation of its collections. In future, a cross-disciplinary collection portal will make these collections accessible outside the University for use in interdisciplinary teaching/research and citizen science projects.

The University of Münster recognises that engaging in dialogue with artists and the art world provides the opportunity to tap the creative potential of its academics and students. In addition to participative forms of collaboration with non-experts, professional music courses (Faculty of Music, FB 15) represent key formats in this area. Encouraging participation and imparting specific cultural knowledge are therefore two sides of the same coin.

The University of Münster aims to create a permanent venue where all departments can flexibly stage a variety of formats, e.g. exhibitions, discussions, workshops, artist-in-residence programmes etc. This will help promote the sustainability and visibility of scientific and cultural interaction both within and outside the University of Münster.

The University recognises the **role of sports** as a comprehensive area of civic society which strongly promotes social cohesion, cultural identification, integration and health promotion. In close cooperation with the Münsterland sports region, the University of Münster is working to implement participatory research projects and contribute to innovation in sport with various scientific disciplines (e.g. offering consultation in the area of popular and professional sports or developing new products in the health and sports sector). Consequently, sports represent a highly important social context where the University of Münster can pursue its transfer objectives in multiple ways (e.g. through courses offered by University Sports).

To strengthen the triad of society, culture and science, the University of Münster is committed to continually developing its support measures. Moreover, it shall continue to expand the already numerous opportunities for students to engage in artistic and creative endeavours and to make them even more visible through their consolidated organisation within the University. The focus will be on projects that combine artistic, movement-related and scientific aspects.

Transfer Strategy

- Goal 17 Expand extracurricular learning venues and formats for research-based learning
- Goal 18 Strengthen the interaction of culture, sports and science
- Goal 19 Promote the creative potential of researchers and students

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