

JLU

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JUSTUS-LIEBIG-
UNIVERSITÄT
GIESSEN



THE DEVELOPMENT PLAN OF JUSTUS LIEBIG UNIVERSITY GIESSEN

JLU 2030

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FOREWORD

The Development Plan JLU 2030 sets out the key objectives of Justus Liebig University Giessen (JLU) for the forthcoming decade. The University's development planning for the 2026-2030 period will be revised and specified in greater detail in coordination processes with the federal state of Hessen in 2025.

Our future development can build upon solid foundations. In the past development planning period, JLU – the most successful university in Hessen according to the Excellence Strategy of the federal German and *Länder* governments – has not only convincingly proven its ability to produce internationally visible top-level research. Developed in this context, the Liebig Concept contains action-guiding proposals for the 2020s. We have also succeeded in further increasing the breadth of research achievements and the volume of competitively acquired research funds. Consistently strong demand and high, steadily increasing satisfaction levels among students are testimony to the attractiveness and quality of the programmes offered by JLU.

Our plans for the future carry forward and systematically develop the successful development processes of the past years. Important milestones in the previous development planning period include the research strategy defined in the Liebig Concept to expand top-level research in large research networks and the Studies and Teaching review process to develop study programmes and structures in the 2020s. There have also been numerous developments in individual fields of action, such as the regulated introduction of the tenure-track professorship, significant expansion of our human resource development programmes and the establishment of JLU Information Points in strategically important partner countries at our partner universities as representations of the University abroad.

Building upon these successful milestones, the Development Plan JLU 2030 sets out clear goals for research, teaching and knowledge transfer as well as other fields of activity that are of special strategic importance. These include the consistent enhancement of our research profile and long-term consolidation of student numbers at an appropriate level through the provision of attractive, high-quality courses. However, we also intend to create new focuses in order to address the opportunities and challenges of the future in the spirit of our University. These include strengthening digitalisation processes in research and teaching and consistently embracing sustainability in all fields of activity at the University.

Our vision for the future is shaped not only by the insights we have drawn from the past, but also by our experiences of what is happening today. Times of crisis, such as those we are experiencing at the time this document is being finalised, in the face of the global COVID-19

pandemic, pose particular challenges to society as a whole and to our University as an institution. They also highlight the special role the scientific community and universities play in developing fact-based answers to global questions and scientifically guided problem-solving strategies, and thus in securing the future for us all. The Development Plan provides JLU with a foundation and a framework within which we will fulfil our duty to act in the best interests of society as a whole in the years to come.

This Development Plan JLU 2030 has been prepared in agreement with administrative and academic decision-makers and was passed by the Executive Board of Justus Liebig University Giessen on 31 March 2020 with the support of the Senate on 25 March 2020 and the approval of the University Council on 26 March 2020.

On behalf of the Executive Board, I would like to thank the University and its members for their hard work and dedication over the past years and, in particular, I would like to express my thanks to all those who helped design and prepare the following Development Plan.



Prof. Dr. Joybrato Mukherjee
President of Justus Liebig University Giessen



JLU continues to be guided by the principles of the man it is named after, Justus Liebig, who made ground-breaking discoveries in research, teaching and knowledge transfer in the 19th century.

SECTION 1

GUIDING PRINCIPLES AND PROFILE

With around 28,000 students, more than 400 professors and over 5,500 employees, Justus Liebig University Giessen (JLU) is the second largest institute of higher education in the federal German state of Hessen. Its location in Central Hessen and ties with the greater metropolitan region of Frankfurt / Rhine-Main characterise both the geographical situation and social role of the University. JLU is not only one of the region's biggest employer, it is also the source of diverse collaborations and networks with partners in the city of Giessen and elsewhere in the region.

Conditions and foundations

Founded as the "Ludoviciana" in 1607, JLU has played a pioneering role in research, teaching and knowledge transfer for over 400 years. JLU's goal and guiding principle has always been to combine outstanding achievements in research and teaching with a strong commitment to social responsibility. The three basic principles upon which JLU's success is based were laid down in the 19th century by Justus Liebig after whom the University is named: 1) excellence in basic research with a clear focus on societal requirements and areas of application in a broad range of disciplines, 2) support for early-career researchers through research-informed teaching and the early, systematic integration of young scientists in research projects, 3) development of regional, national and international networks. These basic principles continue to guide JLU's actions today.

Guiding principles of Justus Liebig

As a "differentiated comprehensive university" ("differenzierte Volluniversität"), JLU has a clearly defined teaching and research profile. Subjects range from the classical humanities and social sciences (including law, economics and business studies), psychology and sports science to the natural and life sciences (including human and veterinary medicine), which are organised in altogether eleven faculties. The subject groups covered by the cultural sciences and life sciences define the University as a whole. Teacher training plays a special role in JLU's profile. JLU offers the broadest possible range of teacher training programmes in Hessen with nine of its eleven faculties involved in teacher training.

JLU's profile in research and teaching as a "differentiated comprehensive university"

The research profile of JLU as a whole is characterised by two focus areas (SPBs), five areas of potential (PBs) and currently 28 accent areas (ABs). The SPBs and PBs mark out the main areas of collaborative research which are supported by extensive third party funding. The accent areas are the strategic focuses of one or several faculties that are not part of larger networks. The differentiation between the SPBs, PBs and ABs should be seen as a dynamic system that reflects the latest developments in the profile-forming research areas.



Fig. 1 JLU profile: JLU's profile as a "differentiated comprehensive university" covers the entire range of subjects from law and business studies, the humanities, social sciences, psychology and sport to natural and life sciences.

Success of overall university development

Figure 1 represents JLU's profile as a differentiated comprehensive university (> Fig. 1: JLU profile). JLU's development and profile-building activities have achieved significant success in the past years. In the THE list of the world's best universities, for example, JLU has ranked among the top 400 universities for many years. As the fund-managing university of the Cardio-Pulmonary Institute (CPI) Cluster of Excellence led jointly with the Goethe University Frankfurt and as a participating institution in the POLiS – Post Lithium Storage Excellence Cluster of the University of Ulm and Karlsruhe Institute of Technology, JLU was able to position itself as the most successful university in Hessen in the Excellence Strategy of the federal German and *Länder* governments in 2018. JLU has also enjoyed success in recent years in all other major federal German and *Länder* government funding programmes, including all rounds of the Initiative for Excellence, the Early-Career Promotion Pact, the Programme for Women Professors, the Quality Pact for Teaching and the Teacher Training Quality Initiative.

The University's development planning builds upon these achievements and aims to strategically develop and strengthen all key areas of activity. The Plan distinguishes here between the

three performance dimensions of research, teaching and transfer (> Sections 2–4) as well as five strategic cross-sectional dimensions (equality, human resources development, internationalisation, digitalisation, sustainability) (> Section 5), which support performance in research, teaching and transfer and are of particular importance to the University as a whole. University governance (> Section 6) is a separate area of activity and – with the areas of quality management, administration, construction and properties as well as budget and finance – covers structures and the foundations for target achievement in the above-mentioned fields. The development of academic infrastructures is addressed in the context of the performance dimensions of research, teaching and transfer. The structure of this Development Plan is based on these areas of activity.

Performance dimensions and strategic cross-sectional dimensions

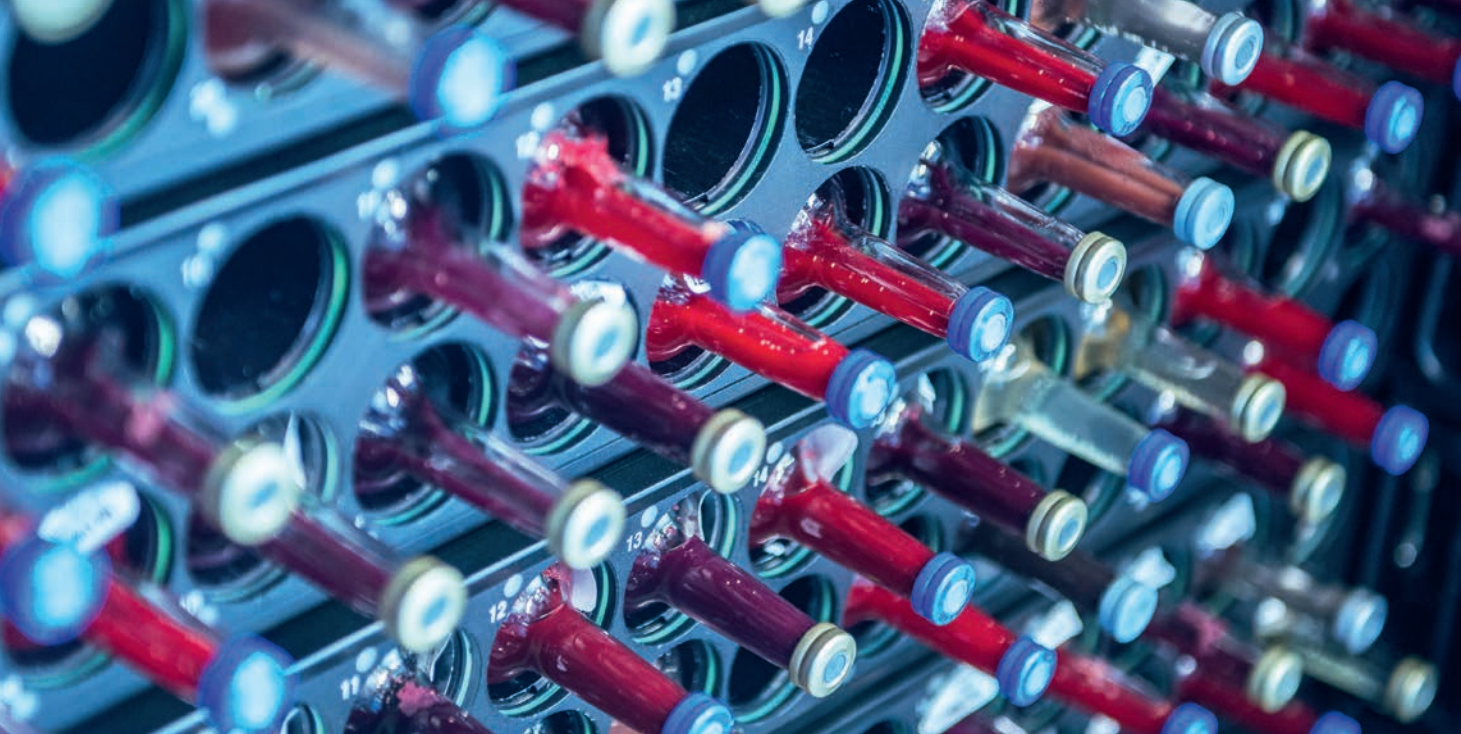
JLU has developed specific strategic concepts for the performance dimensions research, teaching and transfer. For example, the "Liebig Concept. Leading Science, Serving Society. Strategy for the Expansion of Top-Level Research at Justus Liebig University Giessen" – which was prepared as part of the federal German and *Länder* governments' Excellence Strategy in 2018 and revised in 2020 – defines strategic planning for the area of research. The "Strategy Paper on Studying and Teaching", which was drawn up in 2019 on the basis of the University's internal review process, formulates objectives and strategies for the development of study programmes and programme quality for the 2020s. Also prepared in 2019, the Transfer Strategy sets out the basic principles and objectives of development of this area of activity. JLU has also devised specific strategic concepts for the cross-sectional dimensions of equality, human resources development and internationalisation. Corresponding strategic concepts for digitalisation and sustainability will be established by 2021 / 22. The University's development planning is based on and coordinated with the aforementioned specific strategic concepts. These should be seen as an addition to and specification of the lines of development set out in the Development Plan JLU 2030.

Strategic concepts for individual fields of action

The Development Plan JLU 2030 formulates priority objectives for the individual fields of activity and, together with the 2021 – 2025 Higher Education Pact of Hessen, forms the basis for external target agreements between JLU and the state of Hessen. Together with the Higher Education Pact of Hessen and the external target agreements, it is also the basis and reference for the development planning of the faculties, which are agreed by the Executive Board and faculties as part of the internal target agreements 2022 – 2025.

Implementation of development planning

The goals and measures set out in the Development Plan JLU 2030 are implemented according to these principles with the involvement of the University's governing bodies, and are coordinated continuously by the Executive Board and faculties. Implementation is monitored and supported by staff divisions and University administration. As part of the developmental planning quality cycle (> Section 6.1), an interim evaluation will be conducted in 2024 to assess the extent to which objectives have been achieved. The results of the evaluation will provide a basis for the revision of the development planning for the University as a whole with regard to the Higher Education Pact period of 2026 – 2030.



SECTION 2 RESEARCH

Increase in research output

Success in Excellence Strategy programme

JLU has consistently increased its research output in recent years. The success of Giessen's researchers in national and international research programmes, most of them competition-based, is reflected in an increase in the levels of third-party funding the University has received. Acquired funds (project funds for research and own earnings) increased from around € 95 million in 2015 to some € 110 million in 2018. The Excellence Strategy of the German federal and *Länder* governments, according to which JLU is the most successful university in Hessen, has also confirmed the University's potential and ability to develop internationally visible, top-level research. JLU is the fund-managing university of the cluster of excellence Cardio-Pulmonary Institute, CPI, (together with Goethe University Frankfurt) and is also a participating institution in the cluster of excellence "POLiS – Post Lithium Storage" under the leadership of Ulm University and Karlsruhe Institute of Technology. JLU also boasts other recognised top-level research areas that have achieved success in collaborative research and received appropriate funding (> Fig. 2: Third party-funded collaborative research projects). JLU's research output is also supported by a broad spectrum of highly successful individual research initiatives in all subject groups.

JLU's research success is supported by three pillars: 1) the systematic development of the University's overall research profile through the identification and consolidation of strategic top-level research areas and provision of broad-based support, 2) systematic support for early-career researchers and 3) the development of scientific infrastructures according to research needs and potential. The development planning for the performance dimension of research is based on these three fields of activity.

FEDERAL GERMAN GOVERN- MENT

- Antiproton Annihilation at Darmstadt (PANDA) at the Facility for Antiproton and Ion Research in Europe (FAIR)
- German Centre for Infection Research (DZIF)
- German Centre for Lung Research (DZL)
- German Network for Bioinformatics Infrastructure – Bielefeld-Giessen Center for Microbial Bioinformatics (de.NBI - BiGi)
- Cooperation with the GSI Helmholtz Centre for Heavy Ion Research
- Medical Informatics in Research and Care in University Medicine (MIRACUM)
- Post-traumatic stress disorder in adults related to childhood maltreatment – improving its understanding and treatment
- Risk Assessment of the Children of Mentally Ill Parents
- Improvement of Care for Children and Adolescents with Inflammatory Bowel Disease with modern Big Data / eHealth Technologies (CED-KQN)
- Breeding Value in Hybrid Cultures (plant breeding)

DAAD GERMAN ACADEMIC EXCHANGE SERVICE

- German-Colombian Excellence Centre for Marine Science (CEMarin)
- German-Colombian Peace Institute (Instituto CAPAZ)
- SDGnexus Network

DFG GERMAN RESEARCH FOUNDATION

- Cluster of Excellence – Cardio-Pulmonary Institute (CPI)
- Research Training Group - GRK Molecular Pathogenesis of Male Reproductive Disorders
- Research Training Group - GRK Regulatory Networks in the mRNA Life Cycle: From Coding to Noncoding RNA
- Research Training Group - GRK Substitute Materials for Sustainable Energy Technologies
- Justus Liebig University Giessen Clinician Scientist Program in Biomedical Research (JLU-CAREER)
- Collaborative Research Centre - CRC Pulmonary Hypertension and 'Cor Pulmonale'
- Collaborative Research Centre - CRC RNA Viruses: RNA Metabolism, Host Response and Pathogenesis
- Collaborative Research Centre / Transregio - CRC/TRR Innate Immunity of the Lung: Mechanisms of Pathogen Attack and Host Defense in Pneumonia
- Collaborative Research Centre / Transregio - CRC/TRR Chromatin Changes in Differentiation and Malignancy
- Collaborative Research Centre / Transregio - CRC/TRR Dynamics of Security. Types of Securitization from a Historical Perspective
- Collaborative Research Centre / Transregio - CRC/TRR Cardinal Mechanisms of Perception: Prediction, Valuation, Categorization
- DFG Priority Programme - SPP Gene and Cell-Based Therapies for Treating Neuroretinal Degeneration

EU

- Circular RNA Biology Training Network: from Biogenesis to Biomarkers
- Crimean Congo Hemorrhagic Fever Vaccine
- Dynamics in Vision and Touch - the look and feel of stuff
- European Nuclear Science and Application Research 2
- Innovation Laboratory "High Performance Materials"
- Innovation Laboratory "Physics Under Extreme Conditions"
- Iodine Fed Advanced Cusp Field Thruster
- Regulated Assembly of Molecular Machines for DNA REPAIR: a Molecular Analysis Training Network
- TRANSLating the Role of Mitochondria in Tumorigenesis
- Visual History of the Holocaust: Rethinking Curation in the Digital Age

LAND HESSEN

- LOEWE Research Cluster Regions of Conflict in Eastern Europe (KÖE)
- LOEWE Centre Insect Biotechnology (ZIB)
- LOEWE Centre Novel Drug Targets against Poverty-Related and Neglected Tropical Infectious Diseases (DRUID)

Fig. 2 Third party-funded collaborative research projects: JLU's research output is reflected in the large number of third party-funded collaborative research projects. This list shows collaborative research projects with a total funding volume of over € 1 million as of 1 January 2020.

2.1 RESEARCH PROFILE AND FOCUSES

Focus areas (SPBs), areas of potential (PBs) and accent areas (ABs)

JLU has consistently developed and systematically refined its research profile in the past years. At the overall university level, three profile categories have been defined: 1) focus areas (SPBs), 2) areas of potential (PBs) and 3) accent areas of the faculties (ABs). The categories each refer to research areas that are of particular importance to the future development of the University's overall research profile as a result of special achievements and/or from a strategic perspective. The three categories distinguish between the different stages of research focus development and expansion. These profile-building areas are identified and differentiated according to clearly defined criteria and with the approval of all governing bodies and decision-makers. This is an ongoing process of adaptation and development, which means that areas of potential, for example, can be developed into focus areas.

While each of the focus areas and areas of potential are large collaborative research fields that have excellent foundations and previous achievements, also in the context of large third party-funded collaborative research projects, the faculties' areas of potential reflect strategic prioritisations that are pivotal to the development planning of one or more faculties beyond large collaborations. JLU has currently identified two focus areas, five areas of potential and 28 accent areas of the faculties (> Fig. 3: Focus areas and areas of potential).

2.1 Priority development goals: Research profile and focuses

2.1a JLU has four top-level research areas with an international reach.

Indicator: JLU will make four top-level research areas eligible for cluster applications in the next round of the Excellence Strategy, at least two of which will be successful.

2.1b JLU has increased the breadth of its research output.

Indicator: Third-party funds for the University as a whole will be increased and consolidated on an appropriately long-term basis in relation to basic funding by 2025: Project funds for research (Projektmittel Forschung) will increase to 33% in relation to basic state funding (Erfolgsplanzuschuss des Landes) (2018: 30%).

The Liebig Concept

JLU's research profile is being developed according to the strategy document "The Liebig Concept. Leading Science, Serving Society. Strategy for the Expansion of Top-Level Research at Justus Liebig University Giessen", which was drawn up in 2018 in the context of the German federal and *Länder* governments' Excellence Strategy and revised in 2020, which formulates sub-goals and specific measures to achieve the objectives of the development planning. The Liebig Concept is based on a comprehensive analysis of the strengths and weaknesses of the performance dimension of research, taking into account the performance dimensions of teaching, transfer and research infrastructures, which are considered ancillary in this context. This review and analysis provide guidance for development planning in the area of research.

Consolidation of focus areas and areas of potential

The years ahead will see a focus on the further development and consolidation of the identified SPBs and PBs. At least four of these areas will be prepared for cluster applications in the

PARTICIPATING FACULTIES	01	02	03	04	05	06	07	08	09	10	11
Focus areas											
Cardiopulmonary System (heart/lung)								•			•
Mechanisms of Perception and Adaptation						•					•
Areas of potential											
Bioresources (Focus: Insects)								•	•		
Infections and Medicines								•	•	•	•
Smallest Particles							•				
Culture – Conflict – Security (Focus: Eastern Europe)	•		•	•	•						
Material and Energy (Focus: Storage Materials)							•	•			

Fig. 3 Focus areas and areas of potential: The two focus areas and five areas of potential at JLU profile top-level research in large networks at JLU.

next round of the Excellence Strategy as top-level research areas with an international range and in this way, in association with partner universities, attract at least two cluster grants for JLU. The SPBs and PBs will be strengthened through a strategically oriented professorial appointment policy, the creation and promotion of internal university structures, the acquisition of large national and international funding formats and the systematic use of appropriate federal state funding, especially within the context of LOEWE, the "state offensive for the development of scientific and economic excellence".

Apart from raising its profile in the area of large collaborative research initiatives, the development planning aims to promote research output in terms of range, as reflected in publications, third-party funding, rankings/awards, support for early-career researchers, knowledge transfer and networks. The indicator used for this goal focuses on the development of third-party funding since this reflects the externally reviewed, competitive success and academic reputation of the University's research. To increase the breadth of its research performance, JLU will prioritise three areas: 1) development of research support, 2) further consolidation of regional networking, and 3) measures to continually enforce quality assurance in research.

To support research, a wide range of JLU's own funding instruments are available as part of the JLU tool box for research funding (> Fig. 4: Tool box for research funding) – from individual grants to the establishment of interdisciplinary scientific centres. These will be expanded in the coming years through the needs-based development of internal funding instruments, incentive systems and the further expansion of instruments and measures to support early-career researchers and develop human resources (> Sections 2.2 and 5.2).

Networking and collaborations, especially at regional level, will be further strengthened and expanded. This occurs in two directions:

a) Based upon the successful development and widely visible establishment of the Research Campus of Central Hessen (FCMH), which has been supported with federal state funds since 2016, this cooperation project with Philipps-Universität Marburg and TH Mittelhessen University of Applied Sciences (THM) will be continued after state funding expires at the end of 2020.

b) Cooperation with partners in the metropolitan region of Frankfurt/Rhine-Main, to which Giessen also belongs, will be systematically developed. In particular, cooperation with partners at Goethe University will be supported and developed.

Promoting the breadth of research output

Research support

Regional networking and collaborations

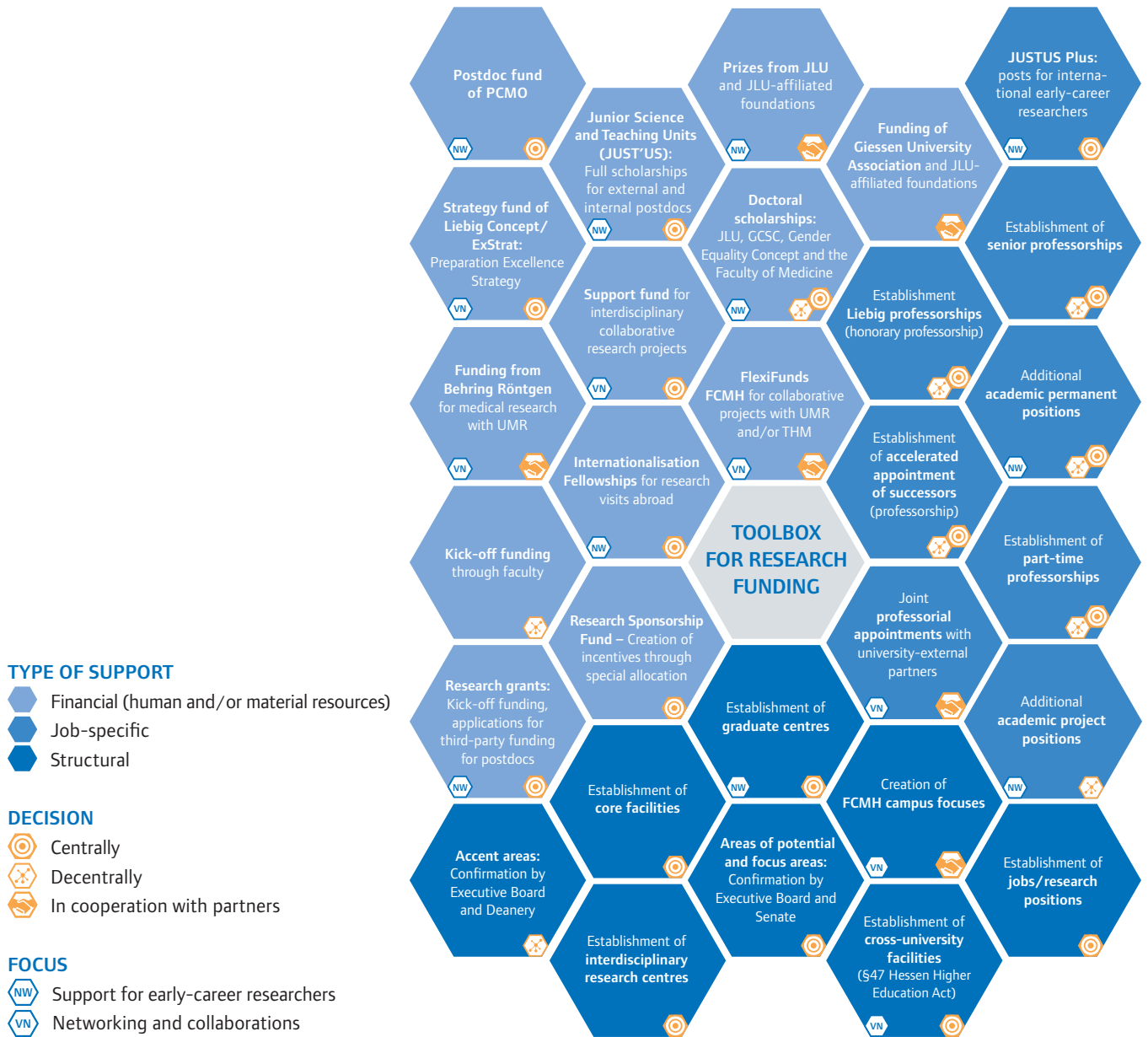


Fig. 4 Toolbox for research funding: JLU has a wide range of its own instruments to support research. A distinction is made between financial, job-specific and long-term structural measures.

Existing cooperations with university-external partners in the region (> Section 5: Locations and partners) will also be continued and strengthened. This occurs on two levels:

a) The successful strategy to endorse Giessen's status as a location (or second location) for university-external research facilities will be continued. By the end of 2022, for example, the new non-university Institute for Lung Health will be established, initially under the umbrella of the German Centre for Lung Gene Research (DZL).

b) Existing cooperations with university-external research facilities in the region of Central Hessen and Frankfurt/Rhine-Main will be continually developed and supported, in particular, the research focuses in the SPBs, PBs and ABs.

GIESSEN

- German Centre for Infection Research (partner location Giessen-Marburg-Langen)
- German Centre for Lung Research (DZL) (based in Giessen)
- Research Division Bioresources of the Fraunhofer Institute for Molecular Biology and Applied Ecology IME
- Institute for Lung Health (under development)
- Kerckhoff Institute for Heart Research with Justus Liebig University Giessen gGmbH
- Agricultural teaching and research facilities at JLU
- TransMIT society for technology transfer mbH

BAD NAUHEIM

- Campus Kerckhoff at JLU and its Faculty of Medicine
- Max-Planck-Institute for Heart and Lung Research

DARMSTADT

- German Poland-Institute
- GSI Helmholtz Centre for Heavy Ion Research
- Helmholtz Research Academy Hessen for FAIR

FRANKFURT

- Frankfurt Institute for Advanced Studies
- House of Logistics & Mobility
- House of Pharma & Healthcare
- Senckenberg Nature Research Society

GROSS-GERAU

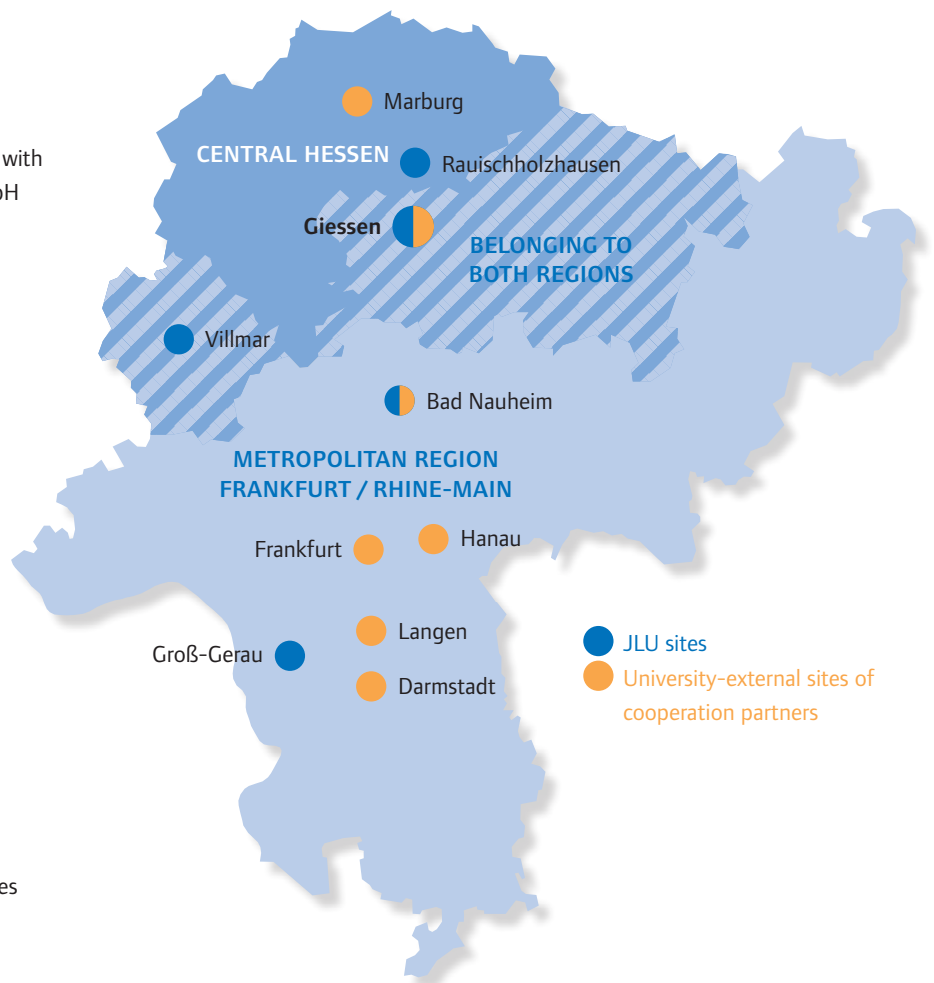
- JLU agricultural teaching and research facilities

HANAU

- Fraunhofer Research Institution for Materials Recycling and Resource Strategies

ACROSS UNIVERSITY SITES

- Research Campus of Central Hessen (together with TH Mittelhessen University of Applied Sciences and Philipps-Universität Marburg)



LANGEN

- Paul-Ehrlich-Institute (Federal Institute for Vaccines and Biomedicines)

MARBURG

- Herder Institute for Historical Research on East Central Europe
- Max Planck Institute for Terrestrial Microbiology

RAUISCHHOLZHAUSEN

- JLU agricultural teaching and research facilities

VILLMAR

- JLU agricultural teaching and research facilities

Fig. 5 Locations and partners: JLU takes advantage of its dual affiliation both to the Frankfurt/Rhine-Main metropolitan region and the Central Hessen region to establish regional networks. The map shows JLU's locations and university-external cooperation partners in Central Hessen and in the Frankfurt/Rhine-Main metropolitan region.

Quality assurance in research

To continually guarantee quality assurance in the area of research, JLU will regularly align existing instruments (including target agreements with the faculties, regular internal and external peer review procedures, ombudsperson) in terms of use and design to requirements. Furthermore, existing guidelines on good scientific practice will be updated on the basis of the German Research Foundation's (DFG) "Guidelines for Safeguarding Good Scientific Practice", which were published in 2019. Quality assurance in research is embedded in the University's quality management system. In future, quality management in the field of research will also be supported by the Research Council, which was newly established in 2020 as a governing body consisting of top internal and external scientists who will advise the Executive Board on research issues (> Section 6.1). New challenges for quality assurance in research resulting from the increasing digitalisation of research methods and procedures, especially in research data management, are addressed separately in the Digitalisation Strategy 2030 (> Section 5.4).

2.2 SUPPORT FOR EARLY-CAREER RESEARCHERS

Structured doctoral programmes

The systematic support for young scholars and researchers has been one of the University's strategic priorities for many years. JLU demonstrated its pioneering role in the area of structured doctoral programmes with the establishment of the International Graduate Centre for the Study of Culture (GCSC), which was funded in both rounds of the federal and Länder governments' Excellence Initiative from 2006–2019. Three interdisciplinary and interfaculty graduate centres have also been successfully established at JLU in recent years, offering structured support programmes for doctoral students in almost all disciplines at JLU.

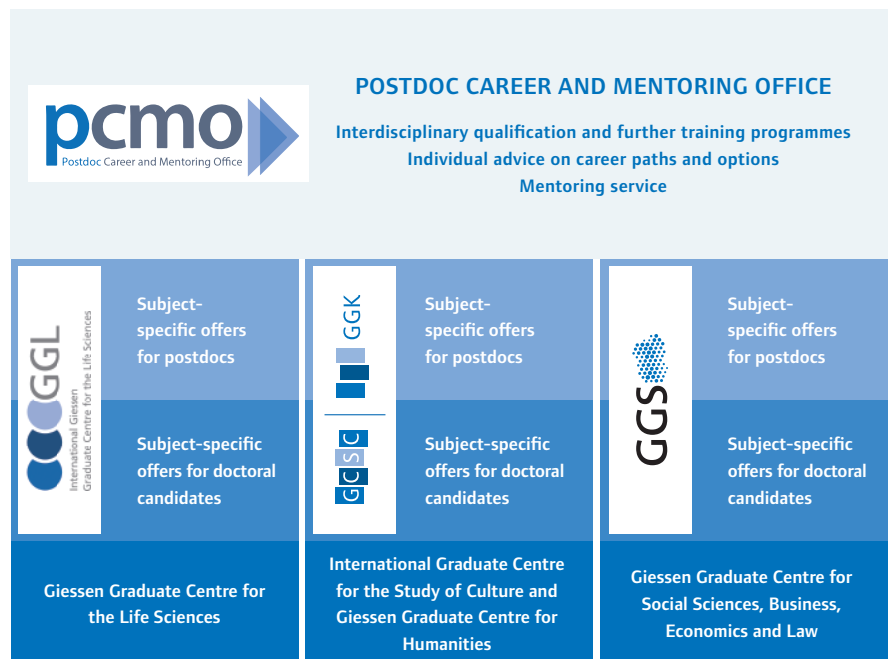


Fig. 6 Structures of support for young researchers: The three interdisciplinary and cross-faculty graduate centres and the centrally based Postdoc Career and Mentoring Office offer customised support measures to early-career researchers from doctorate and postdoc phase to (tenure-track) professorship.

Encouraged by its success in both rounds of the Joint Federal Government-Länder Funding Programme for Junior Academics (Early-Career Promotion Pact) in 2017 and 2019, JLU has significantly expanded and further institutionalised funding structures for postdocs and tenure-track professorships in recent years, notably through the establishment of the Postdoc Career and Mentoring Office (PCMO). Graduate schools, PCMO and the Human Resources Development division thus offer closely coordinated support structures for young scholars on all career levels (> Fig. 6: Structures of support for young researchers).

Support structures of the Postdoc Career and Mentoring Office (PCMO)

In 2017, JLU systematically implemented the instrument for tenure-track professorships and designed a transparently structured procedure for the academic qualification phase (> Fig. 7: Tenure-track system at JLU). Based on this procedure, JLU currently fills – and will continue to fill – 20–30% of all newly vacant professorships according to the tenure-track model. This is supported by the long-term planning of professorship and professorial appointment practices that is continuously coordinated by the faculties and the Executive Board, as documented in the internal target agreements.

Implementation of the tenure-track professorship

Development planning aimed at promoting early-career researchers are based on the objectives formulated in JLU's Early-Career Promotion Pact application and also use the 18 professorships acquired in this programme to implement the tenure-track model and corresponding support measures as a pilot scheme. The objectives defined in the Early-Career Promotion Pact include:

2.2 Priority development goal: Support for early-career researchers

2.2 JLU has a structured overall system for supporting young researchers in all subject groups and faculties.

Indicators: 1) By 2023, JLU will have graduate centres that cover the entire spectrum of subjects; all faculties will be actively involved in graduate centres. 2) JLU's tenure-track system and support structures (PCMO) will be evaluated by 2025 and developed accordingly.

1) JLU fulfils its self-imposed tenure-track quota of 20-30% and systematically implements the developed tenure-track procedure. After completion of the initial probationary procedures, a comprehensive evaluation of the overall system is planned by 2025. Based on this, the procedure will be adapted or optimised as required.

Implementation and evaluation of the tenure-track system

2) Funding, advisory and training opportunities for young scholars will be further expanded within the context of existing structures. When the Early-Career Promotion Pact funding expires, the PCMO will be consolidated and developed on the basis of a positive evaluation and in future, too, will continue to work closely with the graduate centres. In the area of structured post-graduate studies, JLU will set up a fourth graduate centre to cover the classic natural sciences and psychology so that every doctoral student at JLU can use a subject-specific graduate centre and all faculties are actively involved in one centre. The basic structure of GCSC has been secured with the University's own funds since Excellence funding expired at the end of 2019. The GCSC will act as a basic structure for JLU's humanities profile and also foster the development of research initiatives from humanities subject group.

Consolidation of postdoctoral structures and general availability of graduate centres

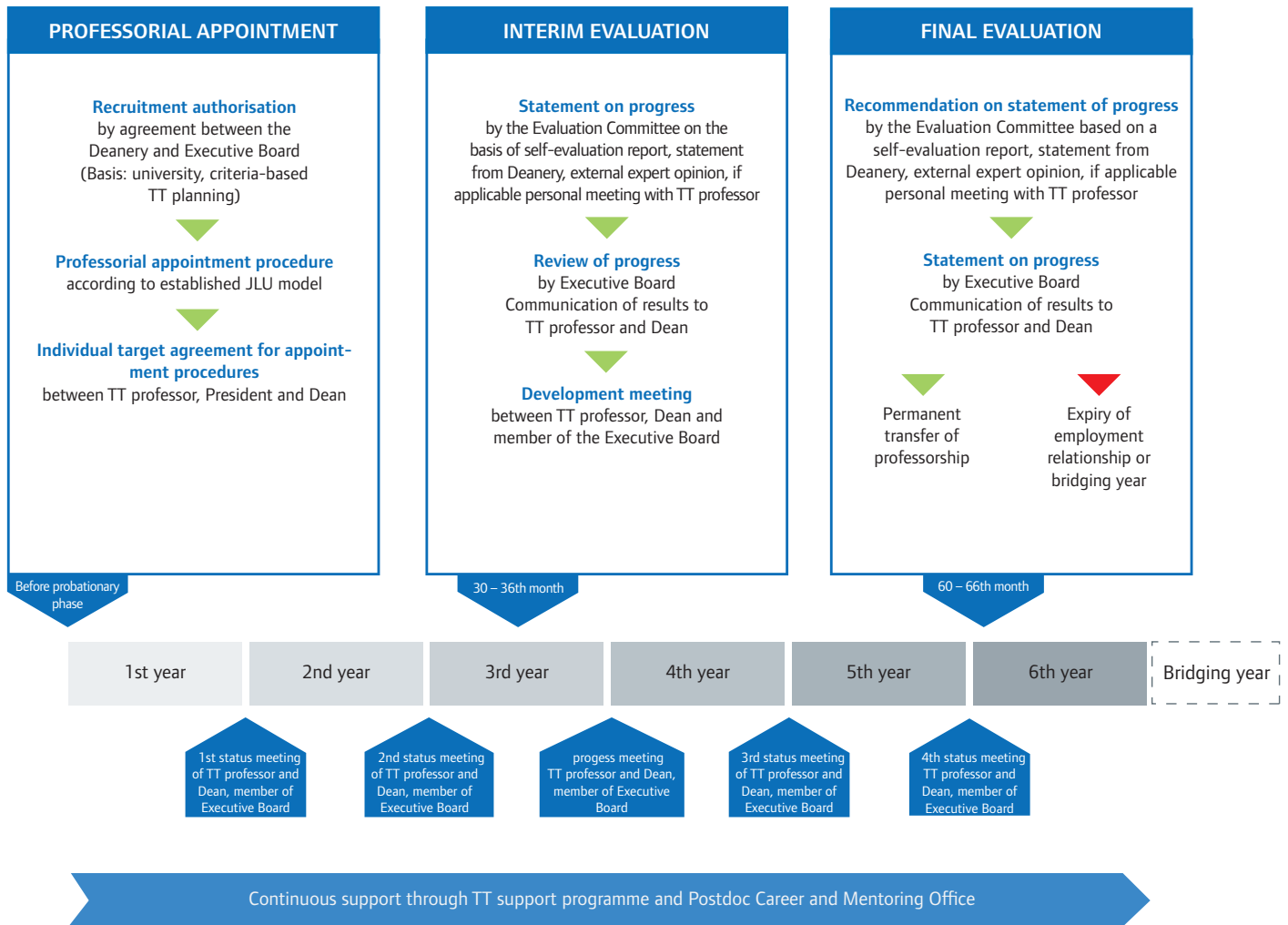


Fig. 7 JLU's tenure-track system: Parallel to the systematic implementation of the tenure track professorship, JLU has developed an elaborately formulated monitoring and support system for the qualification phase of tenure-track professors.

Use of newly established categories of staff

3) In future, JLU will make greater use of the newly established categories of staff (> Fig. 17: Staff categories in Section 5.2) when filling academic posts in order to improve the transparency and plannability of the career paths of young scholars and simultaneously recruit highly qualified young researchers to JLU with attractive job profiles. New job categories such as "research group leader with continuous functions in research and support for early-career researchers" and "lecturer with continuous functions in teaching", are intended specifically to create attractive, permanent career options alongside professorships.

2.3 RESEARCH INFRASTRUCTURES

Excellence in research requires appropriate infrastructures. Thanks to construction projects (> Section 6.2) such as the new chemistry building and the medical research centre, JLU has been able to expand and improve the infrastructural facilities of certain areas in recent years. To support its cutting-edge research areas, JLU is also focusing on the establishment of core facilities, which pool scientific equipment and infrastructures spatially

Support of top-level research

and organisationally and make these available across faculties. The High-Performance Computing Core Facility (HPC), the Central Facility for Laboratory Animals (ZVTH) and the Bender Institute of Neuroimaging (BION) have been set up in the context of pilot projects as core facilities with appropriate statutes and utilisation plans. Specific research infrastructures will also be brought together in the University's research centres (> Fig. 8: Research infrastructures) and in special infrastructural facilities such as the Biomedical Research Centre Seltersberg. Efforts have also been initiated to develop a university-wide system to optimise inventory documentation and use of all (large) equipment and infrastructures.

By implementing a research information system (JLU-FIS) as part of the federal state-funded collaborative project Research Information System of Hessen (HeFIS), JLU aims to enhance the visibility and strategic monitoring of university research. Initial pilot phases have already been conducted with three faculties.

2.3 Priority development goal: Research infrastructures

2.3 JLU has implemented an overall concept for the ongoing development of its research infrastructures.

Indicators: 1) Based on an appropriate overall concept (including investment and utilisation concept), JLU will establish two new interdisciplinary core facilities by 2025 to support top-level research. 2) By 2023, JLU will document its entire research equipment inventory in a regularly updated digital equipment roadmap and by 2025 establish a digital core facility management system. 3) JLU will have fully implemented the research information system by 2025 and it will be systematically used for research monitoring.

As a basis for research infrastructure planning, JLU will develop and implement an overall concept to strategically develop its research infrastructures:

1) JLU will devise an overall strategy to develop existing and establish new core facilities. This also includes a university-wide investment and utilisation plan as well as the establishment of two new core facilities based on this concept.

2) JLU will document its entire inventory of research infrastructures in a digital equipment roadmap and optimise the use of these infrastructures throughout the University through a digital core facility management system. This will be coordinated with processes for registering research infrastructures which have already been initiated as part of the Research Campus of Central Hessen.

3) The research information system will be implemented throughout the University and linked and used via appropriate interfaces. This should also help improve the quality of the University's research planning, e.g. according to internal target agreements.

4) JLU's Interdisciplinary Research Centres are regularly monitored and, if positively evaluated, continued and developed on an ongoing basis. In future, the research centres will be linked more strongly with the support of the focus areas and areas of potential.

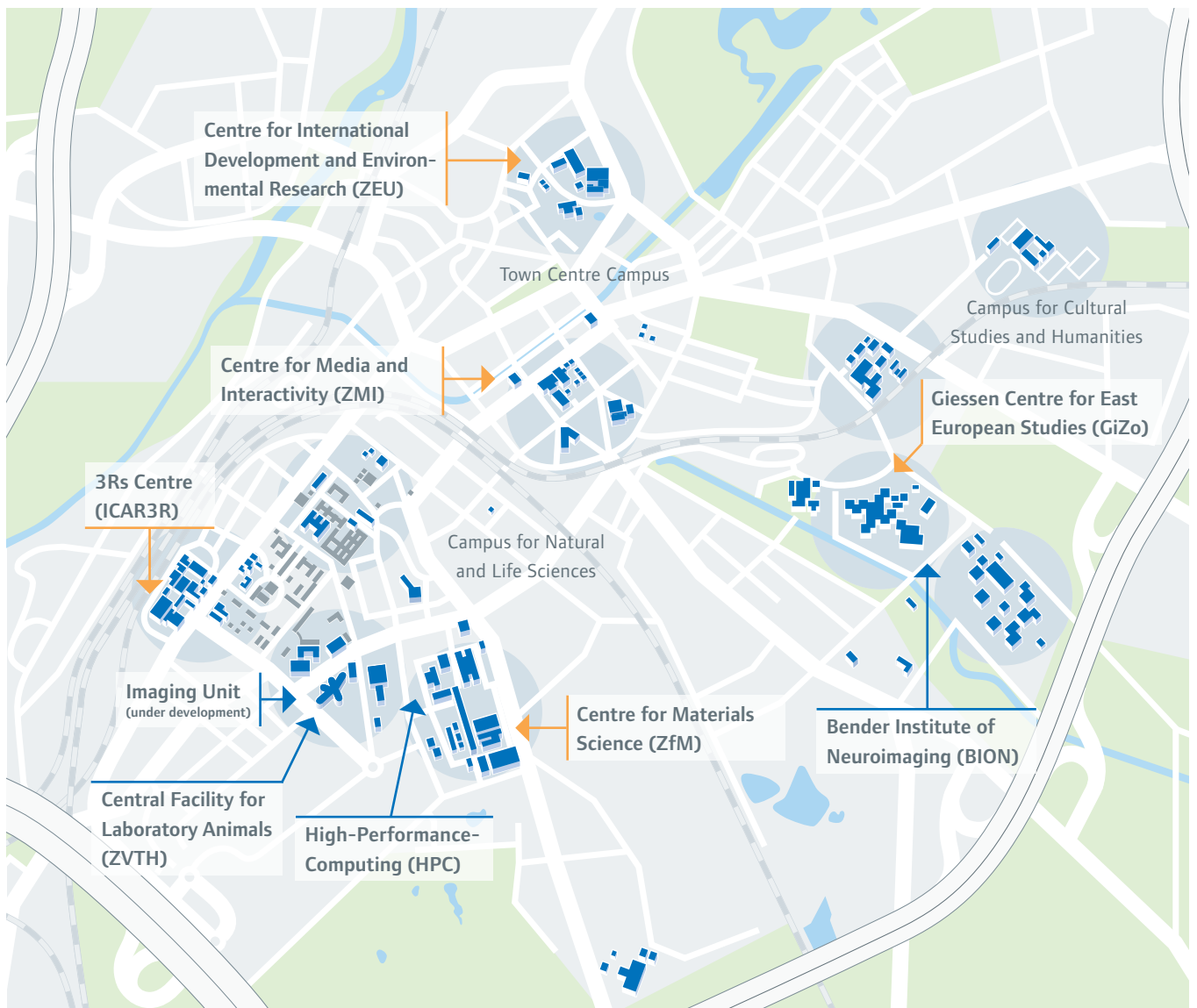
Overall concept for the development of research infrastructures and core facilities

Digital equipment roadmap

Implementation of research information system

Further development of interdisciplinary research centres

For example, the area of potential "Materials and Energy (SP Storage Materials)" will be further reinforced thanks to the continuation of the Research Centre for Materials Science (ZfM), which has been supported to date with funds from the federal state's innovation and structural development budget. To enhance JLU's competence in animal welfare, an area of key importance to several SPBs and PBs, the Icar3R – Interdisciplinary Centre for 3Rs in Animal Research, which was established in 2016 with federal state funding, will be developed into an animal welfare centre at JLU.



■ Interdisciplinary research centres at JLU
 ■ Core facilities (as of 1 January 2020)

Fig. 8 Research infrastructures: Excellent interdisciplinary research output at JLU is promoted by interdisciplinary research centres and the systematic establishment of core facilities.



SECTION 3

STUDIES AND TEACHING

Continued attractiveness of JLU's study programmes

The attractiveness of JLU's programmes is reflected in consistently high demand and correspondingly large student cohorts (winter semester 2019/20: 27,927). Simultaneously and parallel to the quantitative expansion of programmes, JLU has also succeeded in systematically developing the quality of studies and teaching. The success of these efforts is expressed, among other things, in the regular evaluations of student satisfaction levels at JLU, which record steadily increasing values (> Fig. 9: Development of student satisfaction).

Teacher training

JLU offers a total of around 90 Bachelor's, Master's and state examination programmes across a broad range of subjects. JLU's portfolio also includes scientific further training courses. One of the University's focuses in the area of studies and teaching is teacher training. JLU has the broadest possible range of teacher training programmes in Hessen with nine of its eleven faculties involved in teacher training (> Fig. 10: Teacher training programmes). These are coordinated by the Teacher Training Centre (ZfL). Based on JLU's success in both rounds of the federal and *Länder* government's Teacher Training Quality Initiative, teacher training will also be supported by the Giessen Campaign for Teacher Training (GOL) until 2023. Funding has also been acquired in the same programme for the Giessen Campaign for Vocational Teacher Training (GOBeL), which will also be funded until 2023. A pilot scheme aimed at promoting mobility is being implemented in the degree programme in primary education with Islamic religion as the teaching subject through the project "International Mobility with Partners Abroad for Culturally Competent

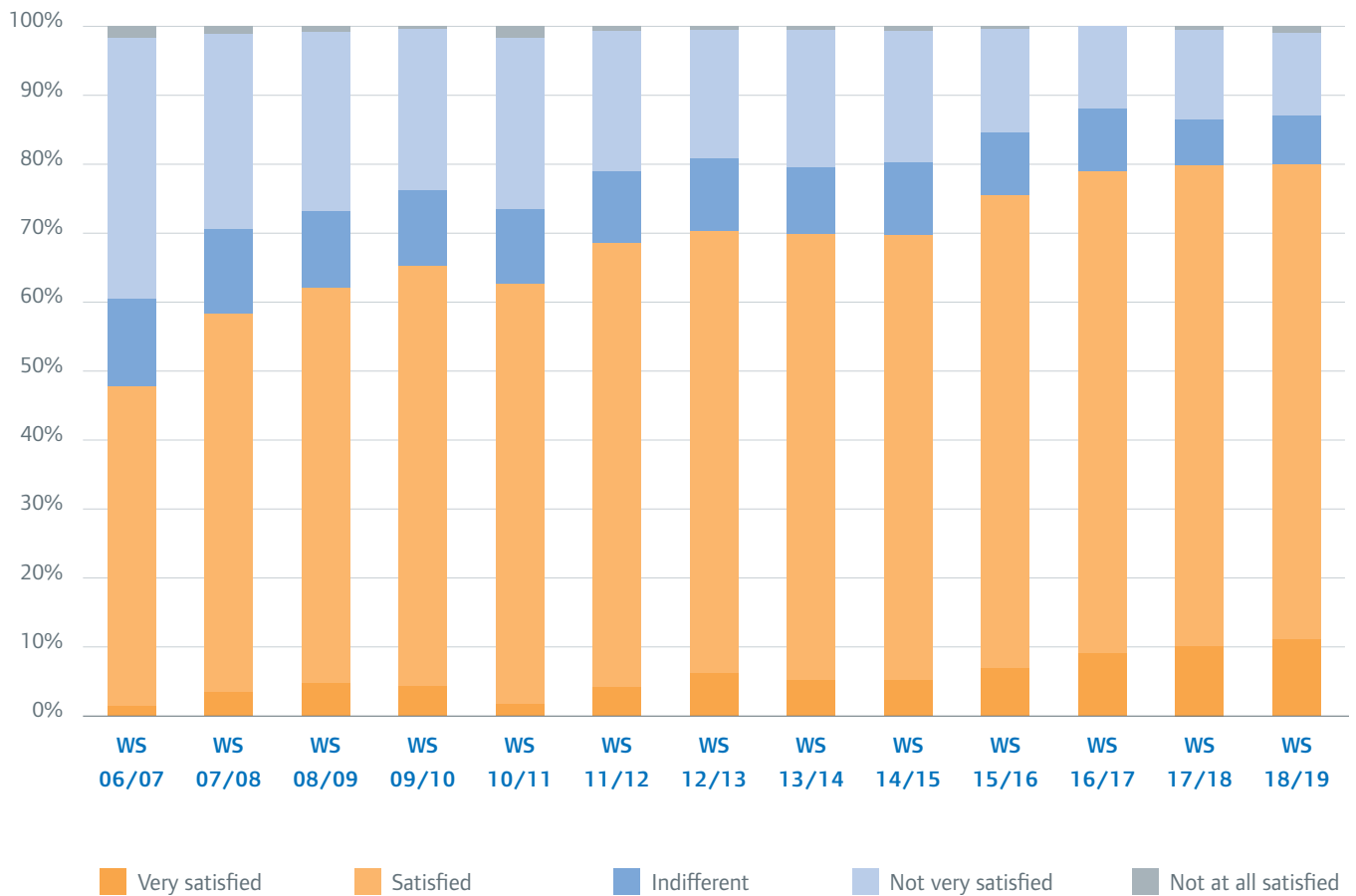


Fig. 9 Development of student satisfaction levels: The high quality of studies and teaching at JLU is also reflected in steadily increasing satisfaction levels among students. The chart shows the results of the central student survey that has been conducted since 2006.

Teachers (IMPACCT)", which has been funded by the German Academic Exchange Service (DAAD) since 2019. This is considered a model project for the further internationalisation of teacher training at JLU.

Extracurricular and job-related skills and capabilities for students of all faculties are taught by the Centre for Competence Development (ZfbK). Numerous measures have been funded since 2012 by the federal and *Länder* government programme to improve study conditions and quality in teaching (Quality Pact for Teaching), in which JLU was successful in both funding rounds with the project Success from the Start (EmE). Supported in both rounds of the Advancement Through Education programme, which is funded by the German Ministry of Education and Research (BMBF) and the European Social Fund, the collaborative project WM3 Further Training in Central Hessen run jointly by UMR and THM has sustainably strengthened the area of further scientific training.

The positive developments and competitive success of JLU (> Fig. 11: Success of third-party funding for teaching) in the area of studies and teaching are based on three pillars: 1) the continuous, demand-based and quality-oriented development of the range of programmes and study structures offered, 2) continual implementation of quality assurance measures and instruments in studies and teaching, 3) provision of the best possible teaching infrastructures. JLU's development plans for the 2020s in studies and teaching are based on these three fields of action.

FACULTIES	TEACHING SUBJECT	L1 (Primary education)	L2 (Lower secondary education)	L3 (Grammar schools)	BBB (Vocational education & training)	L5 (Special needs education)
03	Art	•	•	•		•
	Music	•	•	•		•
	Politics and Economics		•	•	•	•
04	Ancient Greek			•		
	Ethics	•	•			•
	Protestant Theology	•	•	•	•	•
	History		•	•	•	•
	Islamic Religion	•				
	Catholic Theology	•	•	•	•	•
	Latin			•		
	Philosophy			•		
05	German	•	•	•	•	•
	English	•	•	•	•	•
	French	•	•	•	•	
	Russian		•	•		
	Spanish			•	•	
06	Sport	•	•	•	•	•
07	Geography		•	•		•
	Computer Science		•	•	•	
	Mathematics	•	•	•	•	•
	Physics		•	•	•	•
08	Biology		•	•	•	•
	Chemistry		•	•	•	•
09	Agricultural Sciences				•	
	Nutritional Sciences and Home Economics				•	
11	Courses in Special-Needs Subjects					•
02/03/07 08/09	Work Theory (<i>Arbeitslehre</i>)		•			•
03/04 07/08	General Studies (<i>Sachunterricht</i>)	•				

Fig. 10 Teaching subjects: Nine of eleven faculties at JLU are involved in teacher training. This means JLU has the broadest possible range of teacher training programmes in Hessen and covers all school types.

FUNDING BODY	PROJECT NAME
Federal and Länder governments	Project Success from the Start 2020: Specific advice – individual support – integrated teaching (EmE 2020)
	Giessen Campaign for Vocational Teacher Training (GOBeL)
	Giessen Campaign for Teacher Training (GOL)
DAAD GERMAN ACADEMIC EXCHANGE SERVICE	International Mobility with Partners Abroad for Culturally Competent Teachers (IMPACCT)
LAND HESSEN	"Global Health" curriculum awarded the Hessian University Prize for Excellence in Teaching
	Digital Learning and Teaching in Hessen (DigLL)

Fig. 11 Third-party funding for teaching: Large-scale externally-funded projects strengthen studies and teaching at JLU. The overview shows teaching-related external funding of significance to the University as of 1 January 2020.

3.1 RANGE OF PROGRAMMES AND PROGRAMME STRUCTURES

At the end of the term of the 2020.2 Development Plan, JLU carried out a university-wide review of the area of studies and teaching. The range of courses will be developed on the basis of this in the 2020s. The continuous development of programmes on offer focus on two key objectives.

Review of studies and teaching

Firstly, demand and capacity utilisation of study programmes is guaranteed through the provision of attractive, future-focused programmes: JLU will retain the broad spectrum of subjects offered by a "differentiated full university" (differenzierte Volluniversität) while continuing to develop its portfolio according to demand and societal requirements. While the 2010s were characterised by rapid increases in student numbers at JLU (to approximately 28,000), the 2020s will be about stabilising numbers at a level of approximately 25,000 students, which is sustainable for JLU. Secondly, the quality of programmes and teaching will be continuously optimised according to requirements in terms of content, methods and structures. Specifically, this includes the infrastructural and methodological development of the digitalisation of studies and teaching, for example, with the expansion of innovative forms of teaching with online and blended learning formats.

3.1 Priority development goal: Range of programmes and programme structures

3.1 JLU offers an attractive, demand-based and future-focused range of study programmes which it develops on an ongoing basis and according to demand.

Indicators: 1) The total student population will be stabilised to approx. 25,000 students in the period 2026 to 2030. 2) The capacity utilisation of all teaching units will average at least 90% on a long-term basis. 3) Student satisfaction will be permanently maintained at its current high level (reference 2018: 80%).

The results of the Studies and Teaching review process will provide guidance for the further development of study programmes in the 2020s. In 2025, implementation will be reviewed and, if necessary, objectives and measures will be updated. The results of the review are therefore a point of reference for the ongoing development and demand-oriented optimisation of study programmes. New programmes are planned in such areas as data science, sustainable resources and global health, alongside a programme on inequality to be taught in Spanish. At the overall university level, there will be a focus on the following fields of action to develop studies and teaching:

Introductory phase and Studium Generale

1) The range and quality of undergraduate degree courses will be developed with a prospective approach to guarantee capacity utilisation and sustainable demand for the programmes. Specifically, the introductory phase of programmes will be optimally organised and geared towards the needs of an increasingly heterogeneous student body. In pilot projects, for example, school children will be offered more opportunities to study, particularly in the natural sciences, and subject-based promotional activities in local schools will be intensified. In the humanities, preliminary courses will be developed to help applicants choose programmes in this group of subjects and to address heterogeneous conditions and needs, thus improving subsequent academic success of students. Based on these projects, a model will later be developed for a digitally supported general studies course (Studium Generale) in the humanities, which may be extended to include other subject groups if positively evaluated.

Research-oriented teaching

2) JLU will raise the research-oriented profile of its programmes. Specifically, the research priorities of focus areas and areas of potential (> Section 2.1) will be linked even more closely with teaching courses and thus made more visible to students both present and future. As envisaged by the Liebig Concept (> Section 1), appropriate science track pathways and other research-oriented Master's programmes will be developed.

Teacher training

3) JLU's focus on teacher training will address the requirements of the future using acquired funds and be flanked by efforts to further consolidate empirical educational research. On the basis of the amendment of the Teacher Training Act of Hessen and building on the outcome of the Giessen Campaign for Teacher Training, the structure of teacher training courses will be modernised and curricula adapted.

Digitalisation of studies and teaching

4) Digitalisation will be consistently considered and implemented in the field of studies and teaching both as a subject and as a method. On the one hand, it means teaching subject-specific and interdisciplinary skills and competences that are needed for life and work in an increasingly digital world, on the other, it means using digital teaching forms and formats as didactical methods. To cultivate digital skills, an interdisciplinary course known as Generale Digitale aimed at all students will be developed, initially as an extracurricular, supplementary option. After it has been tested and evaluated, the programme will be included in the curricula and, depending on financial conditions, developed in the long term. As regards methods, digital teaching formats and services will be developed and expanded. This is also supported by the federal state-funded joint project Digitally Supported Learning and Teaching in Hessen (DigLL). To increase an international approach in studies and teaching according to JLU's Internationalisation Strategy (> Section 5.3), the implementation of fully digital study programmes, especially for international students, will be reviewed and tested in a pilot study. The special challenges posed by the increasing digitalisation of school education will be addressed as a separate focus (> Section 5.4).

Further training programmes

5) Within the statutory framework, JLU will also continue to develop and offer cost-covering further training programmes in future in areas in which it has a nationally or internationally visible profile and where there is corresponding demand.

6) Alongside the development of programmes and programme structures, the visibility of JLU's programme portfolio will also be increased in the coming years. Student recruitment measures will be further optimised according to an overall concept and centrally coordinated in agreement with the Executive Board, the faculties and responsible administrative units. International student recruitment will also be developed in future, and to do so use will be made of international education fairs. JLU's alumni work will be strategically strengthened by linking the Alumni Service more closely with student recruitment activities.

Student recruitment and alumni work

3.2 QUALITY ASSURANCE IN STUDIES AND TEACHING

JLU has a well-established range of measures and instruments to maintain quality levels in studies and teaching. Specifically, these include the regular external accreditation of all of the University's study programmes, the systematic evaluation of courses, and the annual student survey by the Service Centre for the Evaluation of Teaching Activities and the Competence Team for Studies and Teaching, in which the development, implementation and coordination of quality assurance measures are regularly discussed by the Executive Board and faculties.

Measures and instruments for quality assurance

3.2 Priority development goal: Quality assurance in studies and teaching

3.2 JLU has established a comprehensive quality management system for the area of studies and teaching.

Indicators: 1) By the end of 2021, a quality cycle for the ongoing development of study programmes with the participation of academic and administrative governing bodies will be implemented as part of the University's overall quality management system. 2) To support this process, commissions on courses of study for all subject groups will be set up by the end of 2021.

Quality assurance instruments and processes in the area of studies and teaching will be more strongly networked, integrated and coordinated in a comprehensive quality management system with defined quality cycles. Quality management for studies and teaching is part of the University's overall quality management system (> Section 6.1), into which it is integrated via appropriate interfaces. The structures and processes are presented in a quality handbook Studies and Teaching. The quality management system is supported by commission on courses of study which recommend ways to develop existing study programmes based on programme-specific data in partnership with lecturers, students and administration.

Development of an integrated quality management system

The further development of quality management measures for studies and teaching also forms the basis for the examination of alternatives to the accreditation of individual study programmes. In this connection, a preliminary project is being implemented in 2020 to examine and assess the possibility of introducing system accreditation at JLU. On the basis of this, system accreditation may be prepared and implemented by 2025.

Didactics of higher education

The quality of teaching at JLU is also supported by the programmes offered by the Institute for Didactics of Higher Education, which have been expanded in recent years as a result of various funding schemes such as the Early-Career Promotion Pact, the Quality Pact for Teaching and the joint project Digitally Supported Learning and Teaching in Hessen (DigLL), which is financed with federal state funds. Backed by the Central Hessen Network for Higher Education Didactics (HdM), which is supported jointly by Marburg University and TH Mittelhessen University of Applied Sciences (THM), the Institute for Higher Education Didactics offers JLU lecturers extensive further training opportunities in didactics. These programmes will be developed for specific target groups on the basis of an overall evaluation by 2022. There will be a special focus on higher education didactic programmes for professors. Target group-specific and demand-oriented development will promote the more widespread use of programmes.

3.3 TEACHING INFRASTRUCTURES

Infrastructures for studies and teaching include the structural foundations for seminar and teaching rooms, laboratories and other training settings, such as clinical facilities for veterinary and human medicine (> Section 6.2). Teaching infrastructure is also understood to be teaching and campus information systems, the Central Student Advisory Service, faculty examinations offices as well as the interdisciplinary centres for studies and teaching and digital and media support services that conduct and innovatively develop the range of didactic methods in university teaching.

JLU is an attendance-based university. To support innovative curricula and formats, however, digitally taught courses for students have also been developed in recent years and the area of digitally recorded lectures has been expanded. The range of electronic self-assessment systems for prospective students has been developed, also as part of the BMBF-funded Success from the Start (EmE) initiative and the Giessen Campaign for Teacher Training (GOL). The teaching and campus information systems deployed at JLU (specifically StudIP, FlexNow) have been continually developed, modernised and adapted to current needs in recent years. To restructure the organisation and processes of the examinations offices, an audit and reorganisation procedure was initiated in 2018. An external evaluation of the reformed examination administration procedure is due in 2025.

As part of ongoing measures to develop teaching infrastructures, JLU will concentrate on increasing the digitalisation of teaching and study infrastructures in coming years. For example, the strategic focus "Digital Campus" pursues the goal of fully digitalising Study Administration and examination administration procedures by 2025, paying particular attention to compliance with data protection and data security standards. The provision of electronic documents for students will also be systematically increased.

In the federal state-funded joint project Digitally Supported Learning and Teaching in Hessen (DigLL), JLU in cooperation with the other universities in Hessen will apply for a second funding phase starting in 2021 to establish a platform for digital teaching content for the whole of Hessen.

The structure, organisation and processes of the Central Student Advisory Service (ZSB) will undergo an audit and be developed on the basis of this audit. In particular, new, state-of-the-art digital teaching formats will be used to address the needs and communication behaviours of the target group. On the one hand, the services will be adapted to the future



Fig. 12 Auditorium building: Following renovation and extension work, the medical lecture hall building now unites previously separate teaching sites and offers ideal studies and teaching infrastructure together with the surrounding University Hospital buildings.

Strategic focus "Digital Campus"

Central Student Advisory Service

3.3 Priority development goal: Teaching infrastructures

3.3 JLU's teaching and study infrastructures are optimally and sustainably organised.

Indicators: 1) By 2025, all examination administration processes will be fully digitalised and all documents for students (certificates of achievement, transcripts of records) will be issued in electronic form. 2) The reorganised Study Administration will be externally and positively evaluated in 2025.

advisory requirements of students, on the other, study programme development, student advisory services and student recruitment at home and abroad will be coordinated even more closely.

JLU's two interdisciplinary centres for studies and teaching, the Centre for Competence Development (ZfbK) and the legally required Teacher Training Centre (ZfL) will be continued and developed further. These measures will be based on the external evaluation of the ZfbK in 2018 and the internal analysis of the ZfL, which began in 2019 on the basis of a corresponding self-evaluation report.

The profile of the Centre for Competence Development Centre will be aligned more strongly to specific target groups and associated with JLU's specific academic expertise on the basis of the external evaluation carried out in 2018/19. This includes, in particular, the focus on the three pillars (language, key competencies, career orientation), which address the target group of students. ZfbK's academic profile will also be raised in future with the establishment of a scientific board of directors. Courses already developed in cooperation with individual faculties (e.g. co-teaching) will be further developed in this context and in consultation with the faculties, and they will form part of the ZfbK's academically oriented teaching portfolio.

The Teacher Training Centre will continue to develop teacher training programmes until 2022 on the basis of planned legislative reforms and, in doing so, optimise the structures and organisation of internships and strengthen the concept of school-based study. Another focus will be the training of student teachers and teaching staff in media didactics.

Interdisciplinary centres for studies and teaching



SECTION 4

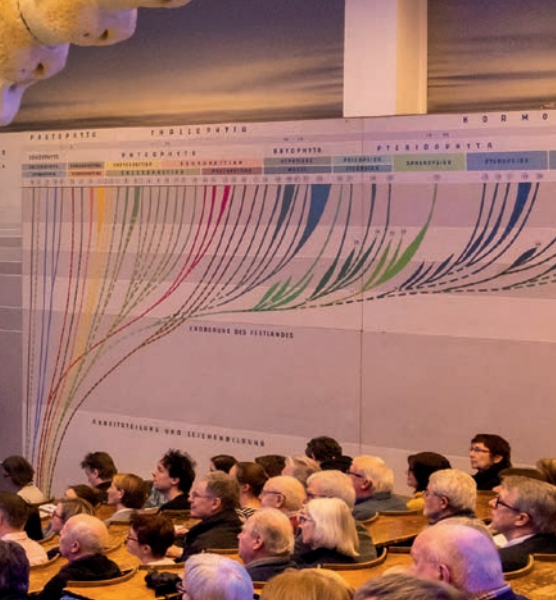
TRANSFER

JLU considers the transfer of scientific findings to society, business and politics to be its third key performance dimension ("third mission") alongside research and teaching. As the region's biggest scientific and educational institute, JLU is conscious of its special social significance for the city and region. It regards the region according to the German Council of Science and Humanities (2018) as an opportunity and a responsibility and systematically promotes cooperation and knowledge-sharing activities with business, politics and wider society in the region.

***JLU's understanding of transfer:
communicate, advise, apply***

JLU's understanding of transfer is based on the three fields of action defined by the German Council of Science and Humanities (2016): communicate, advise and apply/utilise. It covers a wide range of activities in all groups of subjects at JLU which – on the basis of scientific research and discoveries – help intensify dialogue with business, society and politics to collectively address social challenges and pave the way for social and technical innovations. JLU consequently designs transfer activities in the broadest sense to include both traditional knowledge and technology transfer (KTT) in terms of the economic and technological use of research results, and the communication of research results and advising of social and political actors as third mission activities (> Fig. 13: Transfer dimensions).

JLU's flagship projects in the area of transfer include the Binational Excellence Centre German-Colombian Peace Institute CAPAZ, which is coordinated by JLU and funded by the German Foreign Office through DAAD to promote the Colombian peace process, Germany's first Refugee Law Clinic that offers refugees free advice on asylum and residence law issues, and the development of a novel drug for the treatment of pulmonary hypertension, which was awarded the German Federal President's Future Prize. Such transfer focuses and the communication of scientific knowledge across the entire range of subjects are complemented by the systematic and ongoing communication of research results to society as well as numerous public event formats organised by the University in the city and region.



The sperm whale skeleton on display at the Hermann Hoffmann Academy since 2019 was prepared by JLU researchers together with students and reflects the constant transfer and dialogue activities between science and the general public, for example, on the responsible use of nature and its resources or the impact of environmental influences.

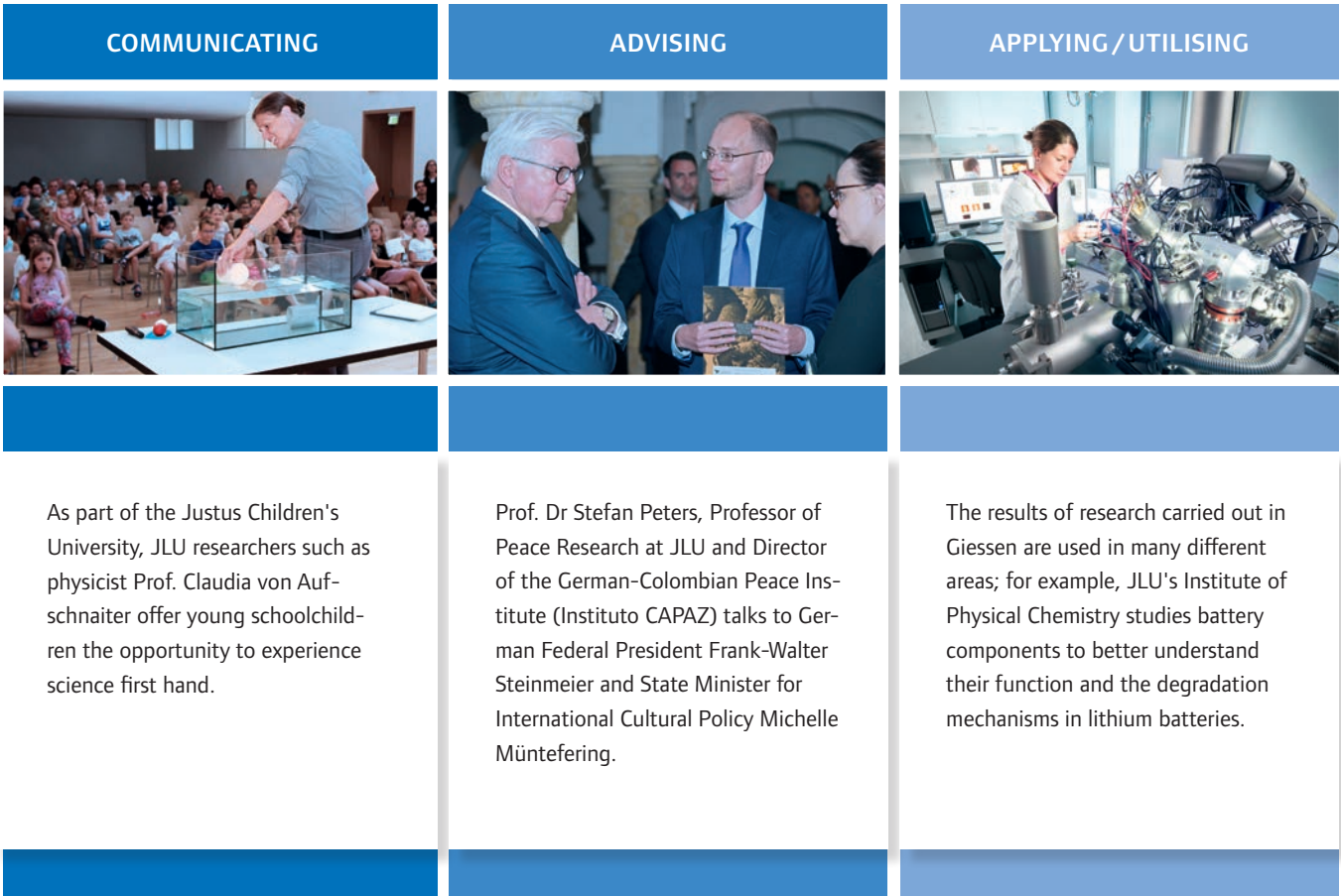


Fig. 13 Transfer dimensions: JLU has a broad range of transfer activities focusing on the three tasks of communicating, advising and applying/utilising.

To systematically advance and develop its many, often locally based knowledge-sharing activities, JLU has developed a university-wide transfer strategy. Development planning for the years ahead will follow the objectives laid down in this strategy document and are based, in particular, on JLU's (top-level) research profile (> Section 2.1.) as well as overriding topics that will be socially relevant for the future.

Transfer Strategy of JLU

4.1 COMMUNICATE AND ADVISE

JLU has a broad spectrum of third mission activities which focus on the transfer tasks of communicating and advising. These include high-profile formats such as the Justus University for Children, the President's lecture series on current social topics, special events and museum projects as well as various initiatives proposed by the faculties and student body that impact the city of Giessen and the Central Hessen region. Numerous JLU researchers are also expert members of political advisory bodies.

4.1 Priority development goal: Communicate and advise

4.1 As the region's biggest scientific and educational institute, JLU consciously assumes responsibility for promoting dialogue between science and society.

Indicators: 1) By 2023, JLU will have a strategic communications concept that addresses issues relating to scientific communication (especially digital) and student recruitment. 2) In partnership with the city of Giessen and other university-external stakeholders, JLU will offer new, innovative events and formats for the general public.

Strategic communications concept

In the 2020s, JLU intends to systematically strengthen (scientific) communication to raise public awareness of scientific findings and highlight the importance and relevance of science-led discussions for society and politics. To do so, JLU will develop a strategic communications concept by 2023 that will address three aspects of communication in particular: 1) Scientific communication: Dialogue with society and politics is supported on the university level by the Press Office, PR and Marketing in the Office of the President and Vice-Presidents and already has well-established formats and channels. To promote scientific communication across all levels of the University, JLU will also develop and establish new, internal support and training programmes in the coming years to help researchers enhance their communication skills and develop their own customised formats in (digital) scientific communication. 2) Digital communication: Given the changing conditions in social communication, the University must have an optimised digital presence as well as traditional PR activities, and use digital communication and formats professionally and according to specific target groups. In the next few years, appropriate activities will be systematically expanded and innovative formats tested. 3) Student recruitment: In light of predicted student population developments in the 2020s and with the aim of keeping student numbers at JLU at a stable level in the long term (> Section 3.1), JLU's PR concept will also address the development, testing and implementation of customised recruitment measures.

JLU will continue to assume social responsibility in the city and region in future and act as a catalyst for social developments, debates and interaction through innovative event formats, platforms and forums. This will include 1) the consistent use and further development of the University and City InfoCenter, run jointly with the THM and city of Giessen, which offers information and services to citizens, local and international visitors as well as students and future students, 2) the continuation and promotion of cooperation with university-external

partners such as the Liebig Museum, the Mathematikum and the Giessen University Association, which offer an attractive range of activities to communicate, demonstrate and discuss scientific findings, and 3) transfer incentives, including those in non-scientific areas, such as the support of urban mobility and sustainability goals through the JLU Bike Sharing Scheme.

4.2 APPLY AND UTILISE

To apply and utilise scientific findings (the third transfer task according to the German Council of Science and Humanities), JLU's Transfer Strategy includes the fields of action: innovation and cooperation management, patent exploitation and business start-up support. In the next few years, JLU will continue to expand this transfer task and, in conjunction with the research-strong focus areas and areas of potential (> Section 2.1), identify and explore new areas of application and utilisation, for example in the form of clinical studies, patent applications or commissioned research projects. Here, too, a special focus lies on cooperation with university-external partners in the region.

Patent applications

4.2 Priority development goal: Apply and utilise

4.2 JLU promotes the transfer of knowledge and technology in the region and therefore contributes to its economic development.

Indicators: 1) The number of patent applications filed by and granted to JLU will increase 30% by 2025 (reference 2019: 15 patent applications, 6 patents granted). 2) The Entrepreneurship Cluster of Central Hessen (ECM) will be positively rated in an external review in 2023.

Cooperation with industry and practice partners is key to consolidating the application-based transfer of knowledge and technology. To systematically expand such contacts and networks in the region and beyond in the next few years, JLU will use the format of the Joint University Forum, which was designed as part of the Liebig Concept (> Section 1) and is funded by the Initiative for Excellence to strengthen transfer collaborations with university and university-external partners and to make the partners' respective contacts with industry and other relevant actors mutually beneficial.

Cooperation management

Apart from cooperations with established companies, JLU's knowledge and technology transfer activities will also contribute towards the region's economic development through new spin-offs. Since 2009, JLU's business start-up centre – the Entrepreneurship Cluster of Central Hessen (ECM) – has offered support and advice to JLU students, employees and graduates who are interested in setting up their own business and acts as a multiplier in the regional economy. From 2020, this will be supported for four years by funds from an EXIST grant from the Federal Ministry of Economics and Energy (BMWi) acquired jointly with UMR and THM. JLU will continue to strengthen and expand its support of business start-up initiatives on this basis in the coming years. The structures and services of the ECM will be reviewed in an external evaluation by 2023 and prospects for continuity tested. JLU will

Business start-up support

strengthen its start-up culture by profiling previous achievements and best practices and by attracting and utilising experienced multipliers.

The service centre for custom research and service projects will continue to offer comprehensive support for the acquisition and implementation of projects financed entirely with external funding in all process stages – from initiation to conclusion – and thus support and assist researchers with commissioned research activities.

4.3 TRANSFER INFRASTRUCTURES

Transfer institutions

Established in 1996, TransMIT society for technology transfer mbH, a transfer company supported by the three universities in Central Hessen, cooperative and savings banks and Giessen-Friedberg Chamber of Commerce and Industry, is committed to marketing innovative technologies and services from science and research. JLU also operates infrastructures in the metropolitan region of Frankfurt/Rhine-Main through participations in the "house of" concept, for example in the House of Logistics and Mobility (HOLM) and House of Pharma & Healthcare, which serve specifically to promote transfer and cooperation with industry.

Transfer within the city, region and society as a whole is supported at JLU by the University's own, established and effective knowledge-sharing infrastructures. Mention should be made of the Hermann-Hoffmann Academy for young scholars and researchers, amongst others.

4.3 Priority development goal: Transfer infrastructures

4.3 JLU has professionalised transfer infrastructures.

Indicator: A "patent and utilise" concept will be available for the cooperation with TransMIT GmbH by 2022.

Strategy for the future "Patent and utilise"

Development planning for the next few years envisage the professionalisation of transfer infrastructures in terms of two dimensions: 1) Based on an evaluation of the processes and structures of cooperation with TransMIT GmbH, a future strategy "Patent and utilise" will be drawn up to promote the application and exploitation of research results in cooperation with TransMIT GmbH and, in particular, to increase the efficiency of patent exploitation. Simultaneously, transparent, comprehensible framework conditions for all stakeholders will be strengthened. 2) Within JLU, the interfaces and processes between the organisational units that support transfer will be further expanded and optimised (Staff Divisions Knowledge and Technology Transfer, Teaching and Research, Office of the President and Vice-Presidents, ECM), as specified in the Transfer Strategy.



Fig. 14 Botanical Garden: JLU's Botanical Garden is used not just for teaching and research purposes. As part of the University's transfer infrastructure, it also teaches members of the public more about such topics as species protection and climate change through guided tours and special events.



SECTION 5

STRATEGIC CROSS-SECTIONAL DIMENSIONS

Definition of strategic cross-sectional dimensions

Apart from developing the key performance dimensions of research, teaching and transfer, JLU has defined goals and measures for five additional strategic fields of action that support these key performance dimensions and are of particular importance to the overall profile of the University. JLU focuses on the following fields of action that are strategic cross-sectional dimensions in this sense: 1) gender equality, equal opportunities and diversity, 2) human resources development, 3) internationalisation, 4) digitalisation, 5) sustainability.

In the past few years, JLU has formulated and approved appropriate strategic concepts for the first three areas in consultation with the University as a whole and with the participation of all central actors and governing bodies (> Fig. 15: Strategy papers). Development planning in these areas is based on these strategy documents. The cross-sectional dimensions of digitalisation and sustainability will be strategically developed in the next few years, building on predefined individual goals and existing measures. Appropriate concept papers specifying prioritisations in the individual performance dimensions will be drawn up.

	RESEARCH	TEACHING	TRANSFER
GENDER EQUALITY	<p>Gender Equality Concept 2.0 at Justus Liebig University Giessen (2017-2023) Anti-discrimination and equal opportunities, advancement of women and family-friendliness</p> <p>OBJECTIVE  Systematic implementation of anti-discrimination, equal opportunities, advancement of women and family-friendliness</p> <p>www.uni-giessen.de/gleichstellungskonzept</p>		
HUMAN RESOURCES DEVELOPMENT	<p>Human Resource Development Concept Qualify – Inspire – Enable</p> <p>OBJECTIVE  Training, support and advancement of all groups of academic, administrative and technical staff, with a special focus on young researchers</p> <p>www.uni-giessen.de/personalentwicklungskonzept</p>		
INTERNATIONALISATION	<p>Internationalisation Strategy of JLU. Progress Through Internationalisation. JLU International 2016 – 2026.</p> <p>OBJECTIVE  Internationalisation in all areas of research and teaching and targeted support of top-level research and intercultural exchange.</p> <p>www.uni-giessen.de/internationalisierungsstrategie</p>		
DIGITALISATION	<p>Digitalisation Strategy (under development)</p> <p>OBJECTIVE  Systematic use of digitalisation as a method and subject in all performance dimensions as well as reinforcement of the University's IT governance and security.</p>		
SUSTAINABILITY	<p>Sustainability Strategy (under development)</p> <p>OBJECTIVE  Promotion of individual and institutional sustainable action throughout the University, especially in the context of sustainability priorities in research, teaching, transfer and administration.</p>		

Fig. 15 Strategy documents: JLU has drawn up its own strategic concepts for each of the five cross-sectional dimensions. These underpin and complement the major strategic approaches as outlined in the University Development Plan JLU 2030.

5.1 GENDER EQUALITY, EQUAL OPPORTUNITIES AND DIVERSITY

Success of JLU's gender equality policy

The "Gender Equality Concept 2.0 at Justus Liebig University Giessen 2017–2023. Anti-discrimination, equal opportunities, advancement of women and family-friendliness" adopted by the Senate and Executive Board formulates JLU's gender equality strategy and defines key goals and measures for this area. It references and is based upon the equality policy practiced by JLU over the years, the success of which has been repeatedly endorsed by external evaluations and audits. For example, DFG rates JLU in its "top group 4" in terms of "research-oriented standards on gender equality". JLU also scored highly in the CEWS University Ranking on Gender Equality in 2017 in terms of increasing the number of female professors. JLU has been awarded the "family-friendly university audit" certificate by berufundfamilie Service GmbH which belongs to the non-profit Hertie Foundation since 2005, and this has been confirmed since then by regular re-audits. The University was honoured with the permanent certificate in 2018. Committed to promoting gender equality, equal opportunities, diversity and family-friendliness throughout the University, JLU consciously assumes social responsibility in this field of activity. Simultaneously, in the interests of the institute itself, the gender equality policy strategically aims to create the best possible conditions to be able to attract and retain on a long-term basis outstanding (early-career) female researchers and thus strengthen research, teaching and transfer at JLU.

Supported by the successful acquisition of funding in all three bidding rounds of the *Bund-Länder Programme* for Women Professors and the Programme for the Promotion of Young Researchers, JLU has been able to substantially strengthen structures, instruments and measures to promote gender equality, equal opportunities and family-friendliness in recent years. Efforts have included the establishment of a Staff Division Equal Opportunities Office which reports directly to the President and coordinates and implements gender equality measures throughout the University.

5.1 Priority development goal: Gender equality, equal opportunities and diversity

5.1 JLU has developed a reputation as an exemplary university in the field of gender equality.

Indicators: 1) JLU will increase the number of women professors to 32.5% by 2025 and to 35% by 2030 (long-term goal: equal participation). 2. JLU will successfully participate in national competitions and rankings in the area of gender equality and equal opportunities (research-oriented gender equality standards, etc.). 3) There will be no significant differences between the average performance-based earnings of female and male professors at JLU.

Of Germany's "comprehensive universities", JLU records the highest number of female students in the country (2018: 62%). In terms of increasing the number of women among academic staff, the CEWS University Ranking on Gender Equality has placed JLU among the top uni-

versities since 2007. The proportion of women in this group was 51.3% in 2017 (CEWS, 2019). The proportion of women professors increased by almost 10% to 30.15% between 2011 and 2019, which means JLU is significantly above the national average (2018: 24.71%) (> Fig. 16: Development of proportion of women).

The development of the strategic cross-sectional dimension of gender equality, equal opportunities and diversity is based on the Gender Equality Concept 2.0 at Justus Liebig University Giessen 2017-2023. The Gender Equality Concept defines specific goals and measures for various fields of action. These include anti-discrimination, family-friendliness, the advancement of women, gender research and the subject of gender in teaching. The objective of the University as a whole is to gain a reputation as an exemplary university for gender equality policies.

The Gender Equality Concept is implemented in close alignment with the University's other management tools. Specifically, these include internal target agreements between the Executive Board and the faculties, which have defined individual gender equality targets for all faculties since 2017 but which also take into account subject-specific aspects. Appropriate targets will also be agreed and implemented with the faculties on the basis of the University's Gender Equality Concept for the 2022-2025 period.

Implementation of the objectives and measures is supported by an Equality Fund, which was set up with JLU's own resources as part of the Early-Career Promotion Pact funding, and is endowed with € 500,000 every calendar year. This Fund will be used to implement

Gender Equality Concept

Fund for gender equality and family-friendliness

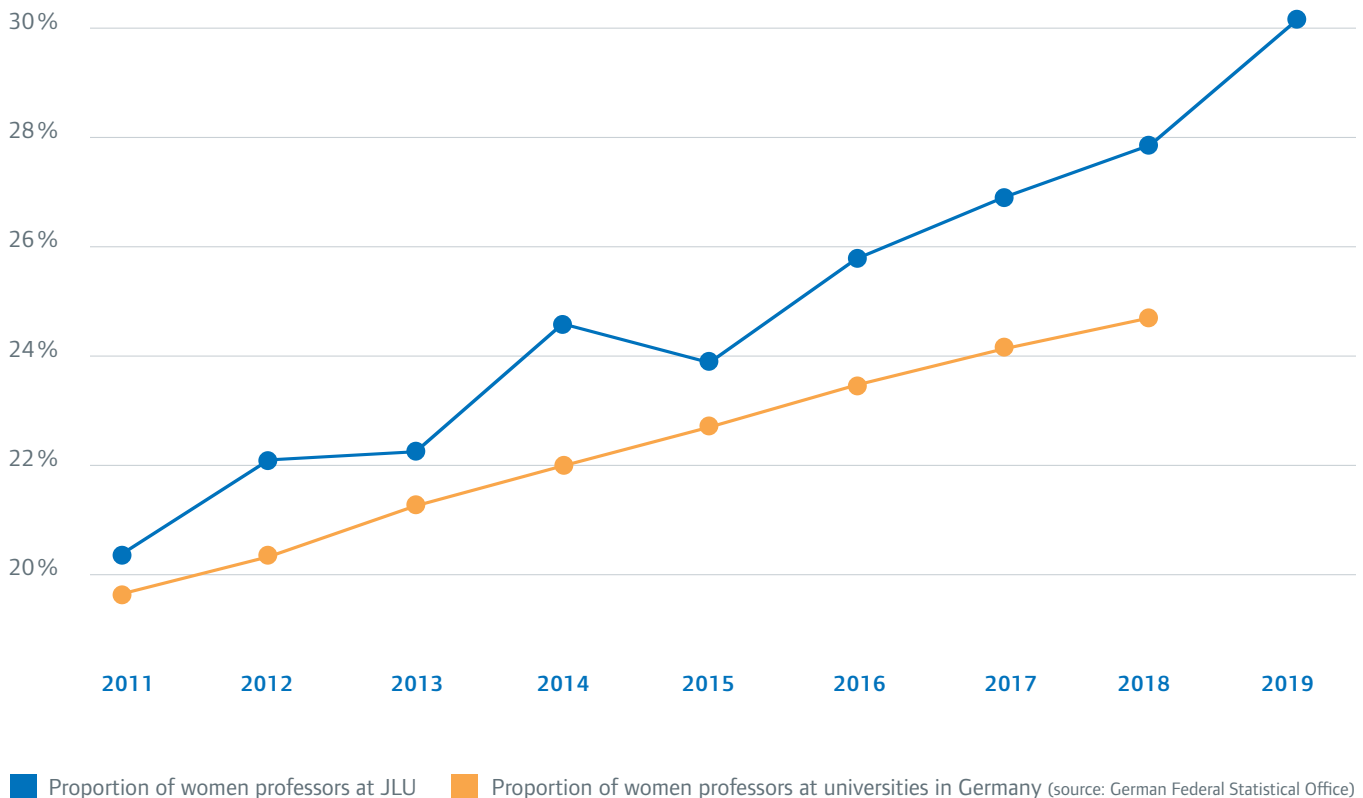


Fig. 16 Development of women in professorships: The number of women professors at JLU has increased steadily in recent years and is well above the national average.

the following measures in the coming years: expansion of short-term and transitional care services as well as babysitter allowances, provision of workplaces in rooms for parents and children, support staff fund for researchers with children. Additional measures are also planned in the area of anti-discrimination, which has been included in the Gender Equality Concept 2.0 as an independent field of action with a separate raft of measures since 2017. To develop an anti-discrimination directive, a complaints office will be set up within JLU's central administration to provide systematic legal support in cases of discrimination against members of the University and thus initiate and implement the official complaints procedure defined in the anti-discrimination directive.

Repositioning of Gender Studies post

The field of gender studies at JLU is currently being reorganised on the basis of the evaluation of JLU's Gender Studies position. The aim is to establish interdisciplinary and cross-faculty links and create synergies between gender-related issues in research and teaching.

Evaluation and revision of Gender Equality Concept

Following a fundamental evaluation of the goals and measures implemented by 2023 according to the Gender Equality Concept 2.0, a revised strategic concept for gender

		STAFF CATEGORIES	FOCUS		CLASSIFICATION		BUDGET AND SUPERVISORY RESPONSIBILITY
			Teaching	Research	Professorship	Institute	
Academic qualification position	Scientific staff member with the aim of further academic qualification	•	•	•			
	Lecturer for specific purposes with the aim of further academic qualification	•		•			
	Research group leader		•	• or •		•	
Academic permanent positions	Tenured scientists with continuous functions in research and teaching	•	•	•			(•)
	Lecturer with continuous functions in teaching	•				•	(•)
	Research group leader with continuous functions in research and support of early-career researchers		•			•	•

Fig. 17 Staff categories: By establishing new categories of postdoctoral staff, JLU creates transparent and plannable career paths for young researchers alongside professorships.

equality, equal opportunities and diversity will be approved and prepared by the University during the term of this Development Plan for the years from 2024.

5.2 HUMAN RESOURCES DEVELOPMENT

The field of human resources development has been sustainably strengthened and expanded in recent years, as envisaged in the University Development Plan JLU 2020.2. With the "Human Resource Development Concept: Qualify – Inspire – Enable", which was adopted by all governing bodies in 2017, JLU has set out strategic guidelines for the development of this field of activity in the coming years. Supported by funds from the Early-Career Promotion Pact and JLU's own resources, the Human Resources Development division was developed in the Human Resources Department on this basis and JLU's internal training and further training programmes were significantly developed in terms of volume, quality and range. Target group-specific offers are available for all employee groups.

Human resource development activities focus, in particular, on support programmes for young researchers. The Postdoc Career and Mentoring Office (PCMO) was set up for this purpose under the auspices of the Human Resources Development division and in cooperation with JLU's three graduate centres (> Section 2.2). The systematic implementation of tenure-track professorships at JLU and establishment of new academic staff categories alongside professorships (> Fig. 17: Categories for staff) have also meant that new, transparent and more plannable career pathways for junior academics have been created on the structural level.

To enhance the competencies of employees working or wishing to work in scientific management, JLU has developed and implemented its own Certification Programme Scientific Management, as provided for in its Early-Career Promotion Pact application. The aim of this programme is to prepare young researchers for fields of work at the interface between science and administration.

*Human Resources
Development Concept*

Early-career researchers

Scientific management

5.2 Priority development goal: Human resources development

5.2 JLU has a comprehensive and professional human resource development system with target group-specific instruments and measures for all groups of employees.

Indicator: The goals and measures defined in the Human Resource Development Concept and Early-Career Promotion Pact will be implemented as planned and according to schedule.

Human resource development system for all groups of employees

Evaluation and revision of Human Resource Development Concept

Further development of the field of activity human resources development pursues the strategies outlined above and specified in the Human Resource Development Concept with clear sub-objectives, measures and milestones and, in particular, implements the targets formulated in the Early-Career Promotion Pact (> above and Section 2.2). Existing structures (especially the services of the Human Resources Development division and the PCMO) will be consolidated. It is the goal of the University to provide a comprehensive, professional human resource development system on the basis of this in the long term. An evaluation of the implementation and success of employment group-specific programmes is planned in 2025 based on the milestone plans laid down in the current Human Resource Development Concept. The goals and measures of human resources development will be adapted to requirements and a revised version of the Human Resource Development Concept will be drawn up with appropriate implementation plans for the following years.

Cross-university cooperation

Cross-university cooperation in the area of human resources development will also be intensified in future. Pilot projects on management development are planned, for example, in the context of the Research Campus of Central Hessen (FCMH). Cross-university career paths will be considered more systematically in human resources development and job rotation opportunities tested with partner universities.

The programmes of the Institute for Didactics of Higher Education will be developed further (> Section 3.3) but will remain closely linked to the programmes of human resources development so that researchers at JLU can be offered optimally coordinated further training opportunities. Based on the established Central Hessen Network for Higher Education Didactics (HDM), cooperation with partners in Central Hessen will also be used in this context.

5.3 INTERNATIONALISATION

Internationalisation Strategy

The internationalisation of studies, teaching and research (accompanied by university administration) has been one of JLU's strategic focuses for many years. In the Internationalisation Strategy "Progress Through Internationalisation. JLU International 2016-2026", which was adopted in 2016 with the support of all central governing bodies, JLU defined the overriding goals for this area of action: 1) support of outstanding achievements in research and teaching through internationalisation, and 2) promotion of intercultural exchange and international understanding. Based on the two tasks of achieving "internationalisation on a broad base" and "internationalisation at the top", the strategy also defines qualitative and quantitative sub-goals and appropriate measures for individual areas of internationalisation. These include, for example, an increase in mobility in Bachelor's, Master's and state examination programmes across all disciplines, an increase in the number of international study programmes at JLU and a continual growth in the international student intake. These goals and measures have been implemented since 2016 as part of an implementation plan coordinated throughout the University.

Strategic partner regions and JLU Information Points

Particular attention is paid to seven strategic partner regions throughout the world, with which JLU cooperates especially intensively (> Fig. 18: Networks). To rigorously and sustainably intensify cooperation with strategic partner regions, JLU established three JLU Information Points at partner universities in Australia, Colombia and Poland in 2019. These guarantee JLU's long-term local presence and help strengthen and expand existing cooperations and international student recruitment.

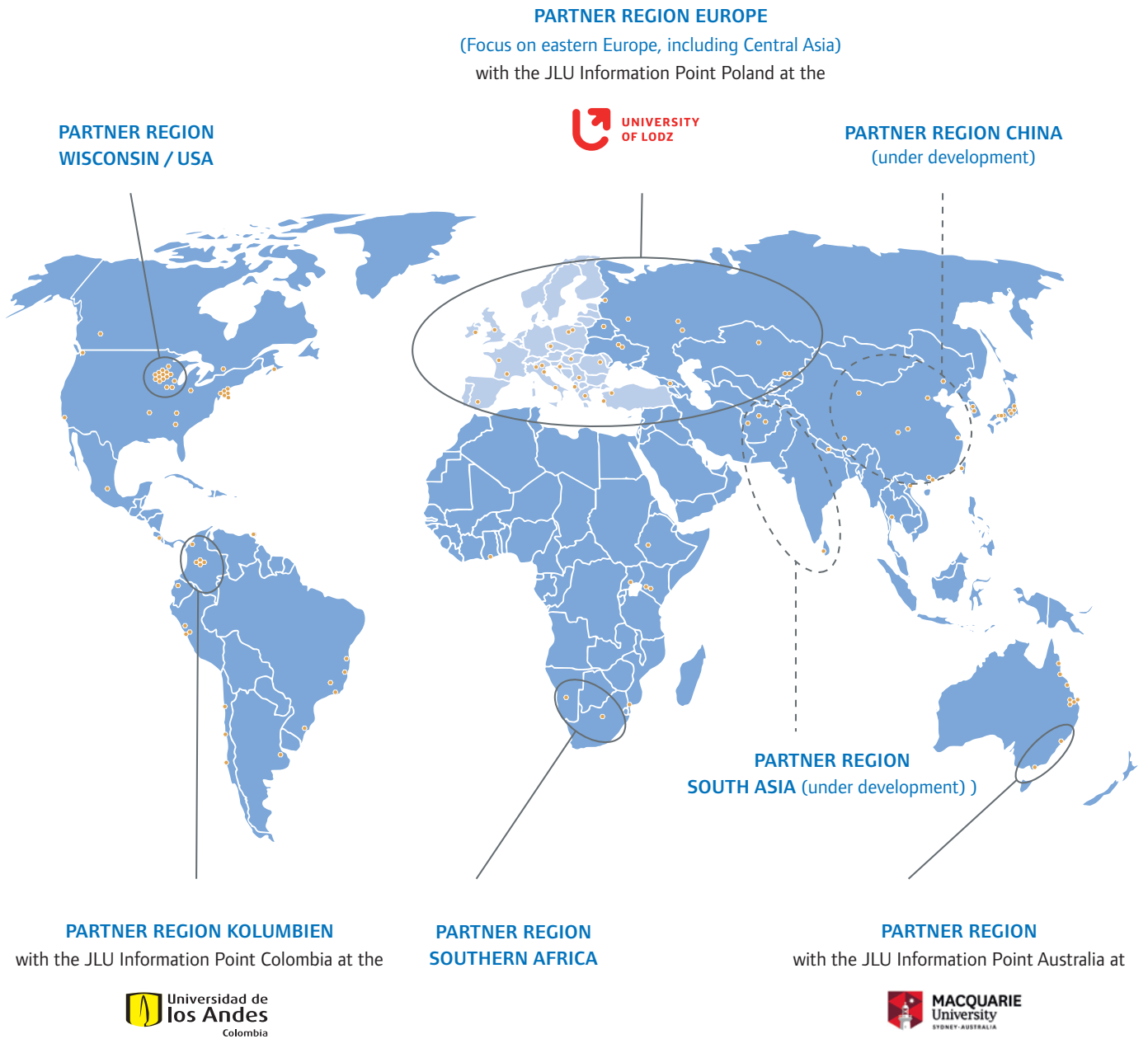


Fig. 18 Network: JLU's network of international partners focuses on seven strategic partner regions. As external representations of JLU, the three JLU Information Points in Australia, Colombia and Poland strengthen special collaborative relations with the respective partner region.

Extensive funding has been acquired in recent years to implement the subgoals in the Internationalisation Strategy. As part of funding programmes offered by the German Academic Exchange Service (DAAD), three flagship projects in international cooperation are currently being supported. On the one hand, JLU is consortium and project director of the Binational Excellence Centre for Marine Science (CEMarin) and the German-Colombian Peace Institute (Instituto CAPAZ), which were established with Colombian partner universities, on the other, JLU is being supported in the programme "exceed – Higher Education Excellence in Development Cooperation" to set up a new excellence centre in development cooperation. Through DAAD's "Lehramt.International" programme, a pilot scheme (IMPACCT > Section 3) is currently being implemented with the

**Project Funding
Internationalisation**

aim of internationalising the teaching profession. JLU was also able to raise significant funds through the systematic use of other funding programmes offered by DAAD, the EU and the federal state of Hessen (including PROMOS, ISAP, Erasmus, Study Structure Programme of the State of Hessen) to promote the mobility of students and researchers on a broad basis.

5.3 Priority development goal: Internationalisation

5.3 JLU is an internationally visible university of choice that attracts researchers and prospective students from abroad.

Indicators: 1) In 2025, JLU will have five internationally visible transnational education projects or internationally visible collaborative research projects. 2) JLU will have a functioning system for international marketing and student recruitment, increasing the proportion of international students to 13% by 2025 and 14% by 2030.

Internationalisation of research

The development of internationalisation measures as a cross-sectional dimension throughout the University pursues the tasks and subgoals defined in the Internationalisation Strategy and the measures and milestones specified in the implementation plan. JLU's role as an internationally visible university of choice that attracts international researchers and students will be strengthened in the long term as a result. Prioritised fields of action therefore include international research networking, among other things through additional transnational education and collaborative research projects with a strong reach. In future, the cooperative potential of JLU and Marburg University will be systematically used to strengthen networks with strong research partners abroad. Strategic networks with international partners will also be extended through the operation and use of JLU Information Points.

Internationalisation of teaching programmes

Study programmes will be internationalised through the development of courses that will be taught in foreign languages, a focus on internationalisation in teacher training programmes, pilot testing of new digital study formats specifically for international students (> Section 3.1) and the development of international study programmes (including the double Master's degree programme Intercultural Communication and Business, the internationally visible Master's programme German as a Foreign Language and the internationally oriented programme Global Health). International student recruitment will continue to be developed and expanded in accordance with University's overall marketing activities.

International student recruitment

It is hoped that these measures will sustainably strengthen the internationalisation of research and teaching at JLU and increase the proportion of international students to 14%. During the term of the University Development Plan JLU 2030, a revised internationalisation strategy for the period 2026-2036 will be drafted on the basis of an evaluation of the implementation status of internationalisation measures achieved by 2026.

Evaluation and revision of Internationalisation Strategy

5.4 DIGITALISATION

Digitalisation is key to the future-focused development of the three main performance dimensions of research, teaching and transfer as well as the area of governance and administration. The availability of appropriately efficient IT infrastructures and the optimally structured governance of digitalisation processes is of special relevance to all of these areas.

In the context of the Executive Committee on Digitalisation made up of representatives of the Executive Board, research and administration, strategic digitalisation priorities were initially identified in 2019 in the three performance dimensions and in the areas of administration/governance and infrastructure. Prioritisations in the area of digitalisation are based on the strategic objectives of the individual performance dimensions. Digitalisation priorities in research, for example, serve to raise the research profile in JLU's focus areas and areas of potential through innovative approaches in research data management. Digitalisation priorities in teaching concentrate on the university-wide academic focus on teacher training, development of online and blended learning formats, the teaching of digital competencies in study programmes and the strategic goal of optimising study administration structures (> Section 3.3). In the performance dimension of transfer, a special emphasis is placed on extending digital formats for scientific communication.

JLU's IT Service Centre was reviewed and evaluated in January 2020. Particular attention was paid here to the proposals put forward in the Hessian Court of Auditors' report on IT at universities in Hessen.

5.4 Priority development goal: Digitalisation

5.4 JLU pursues and systematically implements a clearly defined strategy for the design of digitalisation in all fields of action at the University.

Indicators: 1) JLU will have advanced governance structures by 2025 to be able to strategically prepare and implement long-term resource and structural decisions in the field of digitalisation. 2) The IT Service Centre will be reorganised on the basis of an overall evaluation by 2025 and will support development planning in the area of digitalisation.

Taking into consideration these digitalisation priorities and on the basis of the IT Service Centre's evaluation, a detailed strategy for the further development of IT governance at JLU will initially be drawn up in 2020 with the help of external experts. There will be a special emphasis on IT security.

On the basis of the identified priorities and the concept for IT governance and security, a university strategy for the systematic development of the cross-sectional dimensions of digitalisation will then be agreed and formulated in 2021 at JLU with the involvement of

Digitalisation focuses at JLU



Fig. 19 Digital agriculture: The use of innovative digital methods in the agricultural sciences is a digitalisation priority in research and teaching at JLU. This photo shows the internationally unique DroughtSpotter XXL unit which precisely documents the reactions of over 1,000 plants to drought stress under controlled conditions at five-minute intervals throughout the year.

Further development of IT governance and IT security

Digitalisation Strategy

all relevant stakeholders and governing bodies. The strategy document will outline the central policies for digitalisation until 2030. The strategy therefore provides the framework for the systematic development of the cross-sectional dimension and targeted use of federal state resources promised for this area in the context of the Hessian Digital Pact for Higher Education.

Sustainable action as a social challenge**5.5 SUSTAINABILITY**

Sustainability – in terms of individual and institutional action based on the awareness that natural resources are limited – is one of the key challenges faced by society today. Particular importance is attached in this respect to education and science. JLU acknowledges the special responsibilities of the scientific community. This is why in autumn 2019, with the participation of all relevant governing bodies, it decided to define sustainability as an additional strategic cross-sectional dimension in the context of its development plans, which concerns all performance dimensions at JLU. On the one hand, the University recognises its responsibility as an institution to help develop innovative solutions for sustainable political, economic and ecological action by gaining scientific knowledge, and also to consider aspects of sustainability in its teaching. On the other, JLU also strives to design its own organisational processes in a way that is as sustainable and resource-saving as possible and in doing so to support the future-focused development of key performance dimensions. Sustainability is important for a University not only on an institutional level. All members of JLU are also responsible for sustainability through their individual actions. This is why the cross-sectional dimension of sustainability can only be designed by the institute and individual members of the University jointly.

5.5 Priority development goal: Sustainability

5.5 JLU has a clear strategy for the design and implementation of its sustainability goals in all of the University's performance dimensions.

Indicators: 1) JLU will produce a concept on the University's sustainability priorities in all performance dimensions by 2022 and systematically implement the goals and measures of the concept on the basis of a detailed milestone plan.

2) JLU will set up an office for sustainability as a central coordination structure and appoint a sustainability representative by mid-2021. Analogously, the faculties will be advised to appoint their own sustainability officers. The office for sustainability will be developed into a "Green Office" or given an structure appropriate to its role in the following years.

JLU's position on sustainability follows, on the one hand, the relevant guidelines, specifications and targets of the federal state of Hessen. On the other, the Sustainable Development Goals (SDG) of the United Nations provide basic guidance on structuring this

complex area of action. JLU is already making important contributions in research, teaching, knowledge transfer and other areas to many of the objectives defined by the SDG, such as food security, sustainable energy or peacekeeping. This is the case, for example, in its forward-looking study programmes in the nutritional, agricultural and environmental sciences, the activities of the interdisciplinary Research Centre for International Development and Environmental Research (ZEU) and in its basic research into energy storage systems of the future. Special mention should be made of the international cooperation project SDG Nexus Network. Funded by DAAD for five years from 2020, the project researches the relationships and interdependencies of the 17 SDG in a new scientific competence centre at JLU. Sustainability measures are also considered and implemented in the areas of administration and infrastructure, for example, in the efficient management of structural and technical infrastructures.

Sustainability in research, teaching, transfer and administration

Above and beyond the described examples, a broad spectrum of initiatives and projects in research, teaching and transfer and in administration, address issues of sustainability at JLU. In future, these projects will be made more visible and coordinated throughout the University so that synergies can be exploited and a standpoint and profile for the cross-sectional dimension of sustainability can be developed for the University as a whole. JLU's goal is to develop a sustainability strategy based on a comprehensive status quo analysis with the close participation of representatives of the Executive Board, the scientific community, student body and the central administration which pools and highlights existing activities, identifies thematic priorities in research, teaching and transfer as well as other fields of action such as administration, mobility and property management, and defines specific objectives to be reached by 2030. The measures that result from this will be implemented on a step-by-step basis from 2022 onwards. The development of sustainability concepts and strategies will be scientifically supported by the Panel on Planetary Thinking, which was established in 2020 with the support of the Executive Board. This body acts as a research-oriented think-tank that draws on the interdisciplinary expertise of top-level researchers at JLU, endorses the University's stance on sustainability and also supports the transfer of appropriate subjects from research and teaching to society through high-profile events.

Sustainability Strategy

Panel on Planetary Thinking



Fig. 20 Research Facility for Climate Effects: To develop strategies to reduce the impact of climate change, the Research Facility for Climate Effects in Linden uses CO₂ enrichment rings to study the effects of carbon dioxide on plants, soil and animals.



SECTION 6

GOVERNANCE

Participation of all areas of the University

JLU has continually developed its internal management and governance structures in recent years in order to strengthen its own ability to act and implement strategic decisions – also in the context of an increasingly competitive science system that focuses on the individual profile of universities. One of the foundations upon which these successful developments are based is the systematically promoted participation of all areas of the University in strategy development processes. The aim of engaging all relevant actors and stakeholders early on in development planning processes is to embed key policy-making decisions in all University bodies. For example, JLU's Extended Executive Board, which is implemented in JLU's Basic Charter and comprises the Executive Board, all eleven deans, the Women's and Gender Equality Representative and representatives of the Staff Council and student body, serves to regularly coordinate academic and administrative development processes. Between 2015 and 2019, the Governance and Budget Commission (STEP), which includes members of the Extended Executive Board as well as spokespersons of the Senate and advisory members of the Senate, was also used to regularly discuss the University's strategic development prospects. The work of STEP has been continued since 2019 in the context of the newly founded Strategy Council (see below). These participatory coordination processes, which are designed at JLU as a systematic exchange between academic and administrative areas according to a "mutual response mode", promote consensus-building at the University and thus also help prepare discussions and decision-making processes in the governing bodies that are responsible according to the Hessen Higher Education Act. Planning for the University as a whole is coordinated with the individual development planning of the faculties according to internal target agreements, which are agreed every five years in a top-down/bottom-up process between the Executive Board and the Deaneries. Redesigned in 2016, the target agreement process includes clearly defined and measurable target formulations for all central performance areas at the University. The implementation status of the most important targets is reviewed and discussed in an annual controlling procedure together with all faculties. The evaluation of development plans and target agreements, which takes place at the end of each five-year planning period, forms the basis for development planning for the following period according to the quality cycle for development plans (> Section 6.1).

Internal target agreements



Participation and university-wide consensus-building are the basis of joint strategic planning processes between the central decision-makers at JLU. The photo shows the Senate hall in the Main University Building.

The area of governance also includes the University's administrative structures and processes. These too have been gradually optimised and, where necessary, adjusted as required in recent years. Particularly important fields of action are that of building development and budget and finance. Given the considerable renovation requirements at JLU, construction and property management must be optimally planned. In the area of finance, JLU has a well-established system of internal budgeting with extensive human resource autonomy in the faculties. In the last few years, reserves management, in particular, has been further developed in line with agreements with the federal state. The said fields of action in the area of governance will be systematically developed in the coming years and adjusted on an ongoing basis to current needs.

6.1 GOVERNANCE, QUALITY MANAGEMENT AND ADMINISTRATION

The sustainably successful implementation of the objectives and measures addressed in this Development Plan requires effective administrative and support structures, coordinated planning and management processes and transparent communication and decision-making channels. Proposals for the optimisation of existing governance and administrative structures were developed in 2018 in the strategic considerations of the Liebig Concept and in some cases translated into concrete measures.

To further strengthen the participatory development planning process, the Governance and Budget Commission (STEP) was incorporated into the Strategy Council, which in future will be made up not only of members of STEP but also representatives of JLU's top-level research areas and the central administrative units. Specifically, this means that the perspectives of (top-level) research will be integrated more strongly in the University's general strategic plans. Furthermore, the new governing body of JLU's Research Council will start its work in 2020. The Council is made up of spokespersons for the focus areas and areas of potential, the accent areas of the faculties and select external top-level researchers. As a science-led body of experts, it monitors the discussions and voting procedures of the Strategy Council and advises the Executive Board on issues relating to the University's overall research strategy. In the coming years, both bodies will help support development planning that is geared to the requirements of science.

Further development of institutional structures: Strategy Council and Research Council

6.1 Priority development goal: Governance, quality management and administration

6.1 JLU has effective processes in University management.

Indicators: 1) The new institutional structures of the Strategy Council and Research Council will be fully implemented in 2021.

2) By 2022, all professorial appointment procedures will be systematically integrated into the strategic development planning, while the overall process will be shortened (from recruitment authorisation to acceptance of an offer) to 16 months.

Implementation of a strategic professorial appointment policy

A special focus in the area of governance will also be on the development of the professorial appointment system. This will be achieved, in particular, through the implementation of a strategic appointment planning procedure, which begins well before the actual recruitment authorisation phase starts. By regularly reviewing all chairs that will become vacant in the next five years, recruitment authorisation processes can be planned well in advance in future and vacancies can thus be used to build the University's profile more strategically and be closely coordinated with development planning at faculty and overall University level. In parallel, the existing operational processes of the recruitment authorisation and appointment procedures at JLU will undergo a fundamental audit. The aim is to interlink the perspectives of development planning even more closely with the operational process management of the Human Resources and Finance department in order to both strengthen the strategic orientation of the procedures and accelerate the overall process (from recruitment authorisation to acceptance of an offer).

Quality management

In terms of quality management at the University as a whole, JLU undertook an appraisal of quality assurance instruments and measures in its central fields of action in 2019. The central, university-wide instruments and measures are integrated in the regulatory cycle for quality assurance that is part of the University's strategic and development planning (> Fig. 21: Quality cycle). This cycle includes the following steps: 1) definition of strategies and (quality) goals for the individual fields of action, 2) control and support of measures to ensure implementation according to the target agreements of the Executive Board with the faculties, 3) ongoing review of the measures in terms of the achievement of goals using various procedures and instruments (especially control of target agreements), and 4) regular presentation and discussion of development progress and results in the University's governing bodies and on the basis of this adjustment of the goals and measures after five years. University-wide quality management is therefore one of the key management and leadership tasks of the Executive Board and is closely linked to university-wide strategic and development planning. Insofar as it integrates all of the University's central fields of action, the quality cycle for development planning includes the specific development processes in the performance dimensions of research, teaching, transfer in the strategic cross-sectional dimensions and in the area of administration and governance. On this basis, JLU will supplement the overall university quality cycle of strategic and development planning by establishing and interlinking its own quality assurance systems and corresponding control cycles in all performance dimensions and cross-sectional dimensions.

JLU also actively develops structures and processes to guarantee effective administrative action geared to the needs of stakeholders in research and teaching. In the past few years, a strong basis for this has been developed or optimised in many areas of central administration.



Fig. 21 Quality cycle: Coordinated, interlinked quality assurance instruments and measures in the University's strategic and development plans support the implementation of objectives in all performance dimensions.

Mention should be made, for example, of the large-scale project to develop an identity management system (IDM). This has resulted in a new Staff Service Centre for employees, digital building plans throughout and other optimised administrative processes. In the medium term, the various processes, systems and organisational units relating to administrative modernisation, information management, organisational development and digitalisation will be systematically and closely coordinated (> Section 5.4). As part of measures to develop strategic controlling, data processes will be reviewable across departments in future, stakeholders will be more effectively networked, and information should be more demand-oriented and easily retrievable. JLU will promote the further development of

Strategic controlling

strategic controlling, with the participation of all departments involved in administration and controlling processes and, in particular, examine the possibility of introducing a central document management system or data warehouse solution.

6.2 CONSTRUCTION AND PROPERTY MANAGEMENT

The maintenance and structural development of JLU's campuses and campus areas will be carried out according to long-term development planning and serves to promote high-quality research and teaching at the University's location in Giessen. With the foundation of JLU's Kerckhoff Campus and its medical faculty in Bad Nauheim, JLU was able to consolidate its position in the region in 2018 and institutionalise successful, long-standing collaborations with the Kerckhoff-Klinik. Between 2016 and 2020, important milestones in JLU's overall construction strategy were reached in the context of the investment programmes HEUREKA and HSP Invest. In spite of these achievements, however, around 60% of JLU building stock is still in need of modernisation and renovation. Additional investment is therefore needed to be able to maintain the available space and thus the teaching and research spectrum of the comprehensive university in the long term, and to develop it in a future-focused manner.

6.2 Priority development goal: Construction and property management

6.2 The strategic building development is implemented and structurally optimised as planned.

Indicators: 1) The first expansion phase of the master plan for the Philosophikum and the renovation of the facade of Heinrich-Buff-Ring 58 will be completed by 2025. 2) The Computer-Aided Facility Management System will be fully implemented by 2025.

Structural development of campus

Sustainable property and area management

In the context of the energy-efficient renovation and modernisation of existing buildings and the coordination and implementation of the central new build planning processes, the focus will be on the following development goals from 2021: 1) Further realisation of the structural development measures agreed with the federal state of Hessen. These include, first and foremost, completion of the first expansion phase of the master plan for the conversion of the Philosophikum, which accommodates the humanities, cultural studies and social sciences at JLU; the further renovation and modernisation of the Biologikum building at Heinrich-Buff-Ring 58, which will bring together the biology subjects and in the long term develop the Campus for Natural and Life Sciences Seltersberg; and the renovation and expansion of the horse clinic in the veterinary medicine area of campus, which is one of JLU's unique selling propositions. 2) The introduction of management tools for sustainable property and premises management. With the implementation of a computer-aided facility management system (CAFM), modules for improved operative control (area monitoring, management of maintenance and repair, controlling of construction processes) and for strategic construction planning (area structure development, build-

ding condition analysis) will be gradually introduced. 3) Implementation of the proposals of Consilium Campus Development Giessen (CCG) with a focus on mobility and connected JLU campus areas. The introduction of a bike sharing scheme in 2018 was the first step towards environment-friendly mobility services. Between 2021 and 2025, the CCG, which acts as a central communication platform linking JLU, stakeholders in the city and Hessian ministries, will develop and implement additional measures to connect campus areas both with each other and with the structure of the city and surrounding area – and optimise JLU's visibility in the public sphere. A special focus will be on the development of a JLU-based route guidance and navigation system and expansion of e-mobility structures. 4) The systematic connection of strategic building planning and development planning in the performance areas of research and teaching. To develop modern building infrastructures and create the best possible conditions for all JLU stakeholders, research and teaching-related structural developments will be coordinated even more closely, and requirements and opportunities will be discussed early on in the planning stage in the context of the University's development as a whole. This applies, in particular, to the further and new development of core facilities in JLU's focus areas and areas of potential (> Section 2.3).

Consilium Campus Development Giessen

Strategic building planning



Fig. 22 Campus of the Future: Currently based in the Philosophikum, the social sciences, cultural studies and humanities will be accommodated in extensively renovated and modernised buildings for teaching and research in the future.

6.3 BUDGET AND FINANCES

Basic funding

Budgets and finances are essential components of university governance. The basic funding allocated to JLU by the federal state of Hessen is agreed within the context of the Hessen Higher Education Pact for a period of five years and offered in the form of a global budget. The extensive financial autonomy this provides allows the University to make decisions about resources independently. On this basis, priorities can be defined and the University's profile can be designed in a targeted manner. In addition to basic funding, competitively acquired third-party funds for projects in research and teaching, including additional overhead grants, are a vital part of JLU's overall funding.

The agreements set out in the Higher Education Pact of Hessen 2021–2025 and funds from the German and *Länder* governments' "Pact for the Future: Strengthening Studies and Teaching" offer JLU planning security for its basic funding. JLU needs a reliable financial basis to be able to raise its profile in research and teaching through the targeted support of strategically important areas and, by improving its performance, to increase the attractiveness of the state of Hessen as a location for science and research.

6.3 Priority development goal: Budget and finances

6.3 JLU has future-focused budgeting structures.

Indicators: 1) The indicator-based global budget will be implemented in all faculties by 2025. 2) JLU has a permanent reserves ratio of 20% (reference 2019: 21%) according to the computational bases of the state of Hessen.

Medium-term financial planning

Reserves and risk management

To strengthen JLU's capacity to act through permanent and plannable budgets and, at the same time, to react flexibly to the challenges of the future, all financial components in JLU's overall budget are considered in their entirety as part of a medium-term financial plan, which is drawn up for five years and updated annually, and linked to predictions about resource requirements and cost development. Taking into account the current university pact agreements, the areas of reserves and risk management, in particular, will be developed in the next few years as strategic instruments for a methodical budget management which is geared towards the interests of the University as a whole, and systematically integrated into the overall system of medium-term financial planning.

Indicator-based global budget

With regard to its internal budget system, JLU has relied on budgets for personnel and material resources (with the exception of professorships) since 2008 which are accounted for decentrally. The current budgeting system will be further developed and made more dynamic from 2021 with the introduction of a new indicator-based global budget (IGB). In future, the IGB will combine the human and material resources budgets, which have previously been determined and managed separately, and in addition to a constant basic budget, also have a budget share allocated according to performance-related criteria. By aligning these criteria to the agreements (and performance indicators) of the Higher Education Pact 2021–2025 of Hessen, JLU will use the IGB to coordinate its internal budgeting logic more closely with the budgeting system of the state of Hessen that is relevant to the University as a whole. The established reserves management is also being used in the scope of the new budgeting model.



THE DEVELOPMENT PLAN OF JUSTUS LIEBIG UNIVERSITY GIESSEN

JLU 2030