

Sustainability Strategy



Sustainability Area of Action

PRELIMINARY REMARK

KIT has included Sustainability as a new area of action in its KIT 2025 Strategy and has defined various goals and measures with a time horizon extending beyond 2025 up to 2030 at least. The Sustainability area of action was discussed by the bodies of KIT and adopted by the Supervisory Board in November 2022.

All legal regulations and framework conditions changed since then, such as the building ownership regulation, are not considered in the text below.

Sustainability

“Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” – This is the generally accepted definition of sustainable development by the Brundtland Commission. This concept is also gaining importance at KIT and it represents an explicit goal in KIT’s core tasks of research, academic education, and innovation, entirely in line with KIT’s mission of “creating and imparting knowledge for the society and the environment.”

For many years now, KIT has been highly committed to sustainability and has already achieved clearly visible results and successes. As one of the biggest science institutions in Germany, KIT, in fulfilling its three core tasks and in daily business, is pushing sustainability technologies and developing sustainability methods at the same time.

KIT stands for “Living the Change.” As the Research University in the Helmholtz Association, KIT creates and imparts knowledge for the society and the environment. In line with this responsibility, KIT is committed to the sustainable development goals (SDG) of the United Nations, the Federal Government’s Sustainability Strategy, and the Sustainability Strategy of the Baden-Württemberg State Government. KIT achieves maximum sustainability impacts in its core tasks as well as by the transfer of its findings to science, industry, politics, media, culture, and society.

Expectations of industry, politics, media, culture, and society on science institutions are manifold: Against this background, it is the declared task of KIT to not only identify sustainability problems, develop options for their solution or mitigation, and convey sustainability-related knowledge, but to also apply sustainability principles to itself. KIT’s research profile and its willingness to change help fulfil these tasks. All employees and members of KIT undertake to live up to this responsibility.

KIT’s contributions to making our society more sustainable require a holistic approach. Transfer to society and the society’s participation in dialog processes are major goals outlined in the KIT 2025 Strategy and in our University of Excellence’s leitmotif of “Living the Change”. Accordingly, the KIT 2025 Strategy is extended by the area of action Sustainability, which is of high strategic importance to KIT. Its time horizon will extend beyond 2025 up to 2030 at least, in analogy to that of the area of action Digitalization. The area of action Sustainability defines goals and the corresponding measures to reach them. They will contribute decisively to the sustainable transformation of society and of KIT as an institution. As a cross-cutting topic, Sustainability addresses the three core tasks of KIT as well as KIT’s administration and infrastructure.

Sustainability requires the capability of reflecting on goals and the measures required, developing specific knowledge, and creating joint awareness. KIT applies sustainability principles to its own development and acting and resolves potential conflicting goals in the best possible way within its framework for business. In doing so, it also relies on the responsibility of its employees and members.

Based on the above conceptions, the following three goals, 13 sub-goals, and 38 measures¹ have been derived.

¹ The measures are not listed in the published version of this area of action.

1. GOAL 1: SUSTAINABILITY AS A STRATEGIC CROSS-CUTTING TASK

KIT's sustainability strategy addresses all relevant structures and areas of action in the organization. Sustainability, as a strategic cross-cutting task, is included in KIT's 2025 Strategy.

KIT takes its responsibility for a sustainable development of society seriously, contributes to it, and makes it one of the bases of its mission. Science in particular is of high significance to reaching the sustainability goals. KIT as the Research University in the Helmholtz Association has fulfilled its academic mission to contribute to a more sustainable future for many years now. It is now increasing the corresponding efforts and will continue to do so in future. For this reason, KIT establishes the topic of sustainability as a cross-cutting task and strategic area of action providing orientation for the entire organization.

1.1. Sub-goal 1:

KIT understands sustainability to be the connection of scientific performance with ecological, economic, and social dimensions. Until 2030, KIT's sustainability strategy will primarily focus on the ecological dimension of sustainability in order to make a contribution to climate protection.

The sustainability goals of KIT as the Research University in the Helmholtz Association are formulated in line with the sustainable development goals (SDG) of the United Nations, the Federal Government's Sustainability Strategy, and the Sustainability Strategy of the Baden-Württemberg State Government. The contribution to climate protection to which KIT has committed under the University Funding Agreement II serves the purpose of orientation, as does the commitment of the Helmholtz Association to its sustainable development. Moreover, KIT follows documents on sustainability developed "from science for science," such as the guidelines on Sustainability Management in Non-university Research Organizations (LeNa).

Due to the thematic width and high complexity, sustainability at KIT represents a huge challenge for the development of its research, academic education, and innovation as well as for its organization and infrastructure. KIT focuses on the ecological target dimension and, thus, follows the goals specified in the University Funding Agreement (March 31, 2020):

- Largely climate-neutral state administration by 2040,
- reduction of CO₂ emissions of state-owned buildings by at least 65% by 2030 and at least 80% by 2040, and
- (continued) purchase of certified green electricity only.

The climate protection goals of the amended Climate Protection Act of Baden-Württemberg (October 6, 2021) extend beyond the goals of the current University Funding Agreement:

- Net greenhouse gas neutrality of the state universities by 2030.

KIT supports corresponding adaptations of follow-up regulations and strives for net greenhouse gas neutrality.

To reach these goals and in particular that of CO₂ reduction in the KIT-specific context as a science organization and to evaluate the entire range of sustainable development options beyond this legal framework, KIT develops, under the direction of the new Executive Board Department "Digitalization and Sustainability," a Sustainability and Climate Protection Plan that will be agreed upon with the persons responsible for the other areas of action.

This Sustainability and Climate Protection Plan will specify goals and measures in more detail. They will be in line with the climate protection goals defined by the state and federal governments and with the additional legal and science-specific framework conditions in the core tasks and business, which will also cover infrastructures and construction development planning, for instance.

In doing so, the special characteristics of KIT have to be considered: As a result of KIT's institutional structure as "The Research University in the Helmholtz Association," the tasks of both university and large-scale research are reflected by the properties and buildings of KIT. As regards its two main locations of Campus South and Campus North, this means that buildings on Campus South are owned by the State of Baden-Württemberg, while buildings on Campus North are in the ownership of KIT. KIT's premises in the city are supplied with electricity, heat, and water by public (and partly also private) utility companies to a large extent. On Campus North, KIT operates a supply infrastructure of its own. These campus- and task-specific features must be considered when setting up a Sustainability and Climate Protection Plan. For Campus North (including Campus Alpine), it is the declared goal of KIT to reach CO₂ neutrality by 2030. For the Campuses South, West, and East, KIT -

as the user of the property and contract partner of utility companies - supports the goals defined by the State of Baden-Württemberg in its amended Climate Protection Act of October 6, 2021. The Sustainability and Climate Protection Plan will offer orientation for the implementation of the sustainability strategy on the different levels and in the different departments of KIT, create awareness of the relevance of sustainability, and also serve as a guiding principle for employees and members of KIT.

A monitoring scheme will be established to evaluate whether the goals of the Sustainability and Climate Protection Plan have been reached.

1.2. Sub-goal 2:

Contributions to scientific performance in the area of sustainability are covered by the research, teaching, innovation, and transfer strategies and implemented with the help of specific projects.

With its three core tasks and the associated transfer of knowledge and findings, KIT contributes to creating the basis for a sustainable development of society. In line with this academic mission, the KIT 2025 Strategy adopted in 2015 already addressed certain ecological and social sustainability aspects that have been incorporated in the goals and measures of the first nine areas of action. KIT's business activities, its central administration, technical infrastructure, and staff development already address major sustainability principles. In this way, KIT contributes to reaching the SDG, although it is not yet fully exploiting its huge potentials.

The goals and measures formulated here define a strategic framework. Together with the Sustainability and Climate Protection Plan to be developed, this framework will serve as an orientation for the nine already established areas of action (mission, research, teaching, innovation, international affairs, early-stage researchers, governance, central administration and infrastructure, and digitalization) and help sharpen and specify the corresponding measures and activities with respect to their contribution to sustainability.

1.3. Sub-goal 3:

Contributions to social responsibility for work at KIT are further developed and implemented in line with the social dimension of sustainability.

KIT's social responsibility for its employees and members has already been outlined in the KIT 2025 Strategy and is clearly reflected by KIT's mission statement. As specified there, KIT aims to have its working together and its management culture characterized by respect, cooperation, confidence, and subsidiarity. An inspiring work environment as well as cultural diversity are to enrich the life and work at KIT. To this end, KIT implemented a number of measures in the past years.

Examples to be emphasized are the family-friendly university audit, KIT's admission to the best practice club "Familie in der Hochschule" (family at the university), KIT's support services (for example, health management for staff and students, conflict management), as well as the Guidelines for Ethical Principles of Karlsruhe Institute of Technology (KIT) adopted in 2012, the Equal Opportunities Plan adopted in 2014, and KIT's diversity statement adopted in 2022.

While implementing the sustainability strategy at KIT, existing measures to enhance social responsibility must be evaluated systematically as to whether they are in compliance with the holistic approach of the sustainability goals and meet the requirements made on KIT as a science organization. In line with the priorities formulated in Sub-goal 10.1.1, measures relating to the social dimension of sustainability focus on work at KIT.

This means that KIT is aware of its responsibility as an employer for its employees and members, even beyond equal opportunities and diversity. KIT addresses the social aspects relevant to sustainability and further develops the binding framework conditions required for this purpose. These relevant aspects are promotion of early-stage researchers, governance and cooperation, staff development, internationalization, and dependable career paths. Such social responsibility is gaining importance in the context of an increasingly complex work, research, and study environment and the large variety of life plans.

By adopting its staff strategy, KIT has already made its human resources management fit for the future. The focus lies on the development of careers from early-stage researchers to permanent scientific staff. The systematic and modern organization of processes and HR management services has enhanced the transparency of development opportunities, with the management and executive staff assuming a more active and more dependable role in human resources planning and development.

Other important features of social responsibility offered by KIT to its employees and members are best possible framework conditions for work and life at KIT, extending from health-preserving work conditions to competence development for viable and responsible acting to the compatibility of family and work (by e.g. offering working time models adapted to the respective life phases). These are optimized continuously, with digitalization being considered a big institutional opportunity.

On this basis, existing measures and activities will be further detailed and complemented, if required.

1.4. Sub-goal 4:

KIT's sustainability management is anchored at the Executive Board level as a strategic cross-cutting task and is accompanied by appropriate dialog formats. Digitalization potentials are used for reaching the sustainability goals.

Core tasks, exchange with industry, politics, culture, and society, and in particular KIT's business will be organized more systematically than before to enhance sustainability. Based on existing routines, KIT's structures, processes, and management and information systems are adapted and revised, if needed. These activities are supported continuously.

For KIT to account for the increasing political relevance of this topic and the corresponding internal and external requirements, a central, strategically oriented coordination of the measures is required. In parallel, the numerous aspects of sustainability have to be integrated in processes and adequate exchange formats in agreement with the science and administration units involved. Current sustainability-related processes and exchange formats are analyzed and re-oriented, if required. This is done in line with the existing standards and guidelines for sustainability, which will be further developed and adapted by KIT. From these, KIT will derive its specific sustainability management scheme in line with its willingness to change.

The new KIT Vice Presidency Digitalization and Sustainability as of January 2023 will create clear responsibilities on KIT's highest management level. The importance of sustainability will be underscored both internally and externally. This Executive Board Department will develop and apply an integrated sustainability management scheme as part of KIT's management information system to control and monitor whether the goals defined in the Sustainability and Climate Protection Plan have been reached. In a structured, continuous process, this central sustainability management will consolidate and coordinate all sustainability-relating activities that are implemented centrally or decentrally by the responsible units at KIT.

Pooling of sustainability and digitalization in one Executive Board Department enables perfect use of existing digitalization potentials to initiate efficient sustainable and climate-friendly processes. New impetus is given to work sustainably in the digital era. The basis has been provided by making digitalization an area of action in the KIT 2025 Strategy. Responsibilities for the processes lie with the competent organizational units.

Appointment of a Climate Protection and Sustainability Commissioner of the Executive Board in 2020 was followed by the establishment of the Sustainability Office as the central contact point for sustainability management at KIT in 2021. The existing structures at KIT (such as the new Executive Board Department, round table, governance framework for digital information processing and supply at KIT, etc.) are further developed. Continuous processes are established to reach the sustainability goals.

To coordinate proceedings, a climate pact was concluded with the seven other universities in Karlsruhe and the City of Karlsruhe in 2021.

To identify and leverage digitalization potentials in connection with the sustainability goals, an information on sustainable work in the digital era is developed.

1.5. Sub-goal 5:

KIT's sustainability activities are audited regularly according to acknowledged European standards. In line with the priorities specified in its sustainability strategy, a particular focus lies on the ecological dimension of sustainability. The sustainability monitoring scheme required for this purpose is established along the strategic priorities. The corresponding reporting activities are integrated in the existing reporting scheme. KIT uses reporting for internal and external communication and reflection.

Implementation of the sustainability strategy at KIT is a continuous process of communication and reflection, which is supported and adapted to ensure that the goals are met under changing framework conditions. While the Sustainability and Climate Protection Plan outlines the goals for the sustainable development of the different areas in more detail, sustainability monitoring is aimed at developing and applying an appropriate reporting scheme and valid indicators to measure the extent to which goals have been reached.

To strengthen the sustainable development of KIT, KIT has reported selected indicators and flagship activities in the Annual Report and progress report since 2019 already. In 2021, KIT for the first time included sustainability management as a separate chapter in its Strategy and Development Plan from 2022 to 2026. Existing planning and reporting formats of KIT, however, do not reflect the entire breadth of sustainability activities and all contributions to a sustainable transformation of KIT. Based on the sustainability strategy and KIT's Sustainability and Climate Protection Plan, an institution-wide approach to integrated sustainability monitoring is developed and implemented. KIT checks holistic certification systems and implements a central sustainability monitoring scheme. For this purpose, sustainability is integrated in KIT's reporting scheme and a dialog with internal and external stakeholders is established.

The goals specified in the Sustainability and Climate Protection Plan are further detailed by adequate qualitative and quantitative milestones. In this way, sustainability monitoring will support the sustainability management in checking whether goals have been reached and will sharpen awareness.

Based on existing key sustainability figures, such as CO₂ emissions and energy consumption, indicators have to be further developed as needed, with the mobility sector being integrated (e.g. CO₂ emissions produced by business trips). Existing schemes, such as the University-specific German Sustainability Code (hochschulspezifischer Nachhaltigkeitskodex), are used and considered as needed to define adequate reporting indicators and to further develop reporting and the corresponding obligations (in e.g. the progress reports of KIT Centers, Annual Report, etc.). Using the indicators selected, sustainable development of KIT can be measured, communicated, and presented transparently. Measurement of the relevant indicators will also enable identification of optimization potentials. For a responsible sustainability monitoring, conflicting goals with those of other areas of action must be resolved in dialog with the responsible departments of the institution.

With their research, KIT's scientists make valuable, viable contributions to a sustainable development of society. These scientific contributions are integrated in the reporting scheme in an appropriate way for KIT to further enhance its visibility as an internationally leading research and education institution. This will increase KIT's attractiveness for international researchers and students-to-be, whose decisions in favor of their place of work and studies is also based on sustainability aspects. Moreover, KIT contributes to sharpening the awareness of internal and external interest groups and establishes participative formats as a basis for a transformation process in society. Monitoring is complemented by support, reflection, and quality assurance processes, which will eventually result in the further development of KIT's sustainability management.

2. GOAL 2: SUSTAINABLE DEVELOPMENT IN THE CORE TASKS

With its three core tasks (research, teaching, innovation), KIT contributes to a sustainable development. Transfer to science, industry, politics, and society is given high priority.

By extending its KIT 2025 Strategy to also cover the Sustainability area of action, KIT establishes sustainability as a cross-cutting activity in its three core tasks. In this way, KIT's academic missions of research, teaching, and innovation are oriented towards reaching the sustainability goals. The biggest sustainable impacts of KIT result from the gaining of findings, the generation of bases and knowledge to act in the society's areas of demand, and from conveying this knowledge by academic education and transfer to society.

To fully and comprehensively exhaust the spectrum of its large potentials and to assume a pioneering role in German science, KIT's contributions to a sustainable development in its core tasks will be further extended, evaluated, transferred, and documented visibly.

2.1. Sub-goal 1:

With its profile-sharpening topics, KIT possesses great potentials to translate findings from its research into own acting. For this purpose, KIT uses its campuses as well as its real-world labs, in which new approaches and technologies are made available to KIT's staff and members for evaluation and support of their sustainable acting.

In program-oriented research and in the competitive German and European research area, KIT makes essential contributions to the viability of society and the preservation of the natural basis of life.

Researchers from the wide range of disciplines at KIT obtain major findings on pressing sustainability issues and support the efforts to reach global sustainability goals.

In the areas sharpening the profile of KIT, KIT deliberately strengthens interdisciplinary research, teaching, and transfer at the interface between technical and natural sciences and humanities and social science topics, because transfer to and dialog with society play a decisive role in the implementation of scientific findings. Within technology and research projects, KIT uses real-world labs and experiments as well as large-scale research infrastructures to evaluate and transfer latest research results in close cooperation with science, industry, politics, and society.

Consequently, real-world lab research at KIT is of particular importance, because the "transformation experiments" carried out there allow for an investigation and evaluation of the potentials of selected sustainability and climate protection measures in dialog with society and with the society participating in these activities.

Constant further development of KIT's understanding and awareness of sustainability will result from KIT researchers launching research projects as contributions to the sustainable development of society and highlighting the sustainability character of all research projects with reference to the sustainable development goals.

2.2. Sub-goal 2:

Research at KIT follows the eight criteria for research with societal responsibility as outlined in LeNa. It is the primary objective to continuously discuss, reflect on, and create awareness of the context-specific relevance of these criteria. KIT is an active partner in networks to further develop the relevant framework documents.

Research at KIT is obliged to gain knowledge and to master the challenge of contributing essentially to the viability of our society and to the preservation of our natural basis of life for the next generations. The freedom of research and academic education results in a special responsibility for properly organizing research between scientific excellence and social relevance and for contributing to the fundamentals of a sustainable development.

To this end, KIT creates a framework, in which the awareness of research in responsibility for society is strengthened and enhanced. KIT relies on frameworks and guidelines already developed by science and follows the eight criteria for research with societal responsibility as outlined in LeNa: Applied ethics, integrative approach, interdisciplinarity, user orientation, reflection on impacts, transdisciplinarity, transparency, and dealing with complexity and uncertainty. The primary objective is to establish a continuous process for reflection on and building awareness of the context-specific relevance of the criteria in discussion and KIT's research. Doing this, KIT can build on results and documents already developed in discussion processes, such as the Guidelines for Ethical Principles of KIT and the Statutes for Safeguarding Good Research Practice at KIT. For a broad discussion and reflection process in all KIT research topics, KIT can rely on various existing structures, formats, and activities, such as the KIT Centers, the Round Table on Sustainability, and the KIT Academy for Responsible Research, Teaching, and Innovation (ARRTI). These different structures, formats, and

activities will be integrated in the continuous discussion and reflection process.

In addition, KIT assumes a responsible and shaping role in local, national, and international networks and alliances. KIT initiates networks and contributes its expertise to sustainability networks on the Helmholtz level (e.g. Helmholtz Forum on Sustainability), relevant sustainability networks in Baden-Württemberg, the climate pact with the city of Karlsruhe, and university alliances and networks, including EUCOR, EPICUR, CLUSTER, and CESAER. KIT is a well-established, strong network partner that co-designs and further develops the relevant framework documents.

2.3. Sub-goal 3:

In accordance with the principle of teaching following research, KIT's research strength in the area of sustainability is considered in the development of its degree programs. This equally applies to bachelor's programs (through adequate contents of undergraduate lectures), master's programs (up to master's programs of their own), and part-time degree programs while in employment. In this way, KIT has a decisive impact on the professional development of its students. Opportunities to reflect on sustainability aspects in their courses are also created for the teaching staff.

In accordance with KIT's basic didactic principle of teaching following research, KIT's research strength in the area of sustainability is considered when developing degree programs at KIT. In academic education and vocational training, KIT decisively contributes to a more sustainable society by qualifying and sensitizing young people in the relevant disciplines through intensive scientific- and research-oriented education and teaching of transferable skills on the highest level. In their academic life, at work, and in society, these young people can apply this knowledge in a gainful way and contribute to sustainable developments. Sustainable development also is an educational task. It is fulfilled by KIT conveying sustainability-related knowledge, developing sustainability-related competencies, and advancing the action and reflection capabilities required for this purpose. Academic education across subjects and incorporation of sustainability aspects in the degree programs are envisaged. In addition, the respective training offers must be developed for the teaching staff.

The opportunities to consider sustainability aspects are recognized and used in all degree programs (in particular in the teacher degree programs) at KIT. This applies equally to bachelor's programs through appropriate contents of undergraduate lectures, master's programs, and continuing education programs. The potentials of both specialized study programs and courses for "education for sustainable development (ESD)" are used at KIT. Separate master's programs focusing on sustainability will be considered when the portfolio of study programs will be further developed.

To give students easy and direct access to information on courses relating to sustainable development at KIT, these will be included visibly in the existing course catalog.

Training offers addressing teaching staff at KIT are extended to enable them to integrate sustainability in their study courses. Training courses are offered to jointly reflect on analysis methods and sustainability aspects of lectures and courses and to impart to students sustainability skills for their future work and for a sustainable development on this basis.

For several years now, KIT has offered additional cross-disciplinary studies on "sustainable development" and the Sustainability and Transformation Certificate (NATAN). These courses significantly contribute to KIT's education for a sustainable development. The activities of the Karlsruhe School of Sustainability and the KIT Humans and Technology Center, the Center for Cultural and General Studies (ZAK), the Institute for Technology Assessment and Systems Analysis (ITAS), and other institutions, such as the KIT Academy for Responsible Research, Teaching, and Innovation (ARRTI), are considered.

Teaching staff is offered training to push the integration of sustainability issues in their study courses. Existing training courses offered to teachers and researchers by the University Didactics Group (PEBA), the KIT Academy for Responsible Research, Teaching, and Innovation (ARRTI), and the Karlsruhe School of Sustainability are analyzed and extended as needed. Teachers are offered training to reflect on sustainability aspects and their communication in courses, to specifically integrate them, and to impart to students sustainable development skills for their future work.

2.4. Sub-goal 4:

To tap innovation potentials that might contribute to a sustainable development, established instruments of KIT are adapted to extended requirements and new instruments are developed, if needed.

Innovations are of central importance to the sustainable development and viability of a country and the competitiveness of its industry. In executing its core task of innovation and in the area of action Transfer, KIT fulfills the expectation made by the society and politics on science to push sustainable development by developing sustainability and climate protection methods and the corresponding technologies. Excellent research and research-oriented teaching are major pillars of KIT's successful innovation activity and help KIT assume a leading position in knowledge and technology transfer.

KIT's research strength in sustainability topics as well as the discussion of and reflection on responsible innovations, together with the existing programs to support innovations and to strengthen the innovation culture at KIT, give rise to manifold innovation potentials that may contribute to sustainable development and transformation and, hence, to a more sustainable future. To emphasize the aspect of sustainability in KIT's innovation culture, a clear understanding of sustainability in innovation management is developed. On this basis, proved instruments are adapted to extending requirements, sustainability is included as an additional criterion for funding by the innovation fund, and pilot projects on sustainability are supported in a competitive process. If necessary, new instruments are developed and implemented.

KIT's innovation activities are already captured using various indicators and they are presented and documented in reports. They are also processed by third parties in university rankings, for instance. In KIT's reports, such as the Annual Report, the Pact Report, and in connection with the NEULAND Innovation Award and magazine, innovations contributing to a sustainable development are presented in a highly visible manner.

2.5. Sub-goal 5:

KIT supports transfer of sustainability knowledge through a multi-directional dialog with science, industry, politics, and society.

KIT pays particular attention to supporting transfer of sustainability knowledge. Transfer to society and participation of society in dialog processes are envisaged in the KIT 2025 Strategy and in the leitmotif "Living the Change" of the

University of Excellence. KIT supports knowledge transfer through a multi-directional dialog with science, industry, politics, and society via inter- and transdisciplinary formats, such as the real-world labs, the Science Week, and the TRIANGEL knowledge transfer platform. In this way, KIT lives up to its social responsibility and mission to offer a framework for reflection and orientation in the context of regional, national, and global challenges associated with a sustainable development and makes an important contribution to the society's transformation in the region and beyond.

Knowledge transfer for sustainability is further developed by KIT using various communication platforms and formats. The real-world labs existing and to be established and KIT's real-world lab professorships play an important role in this connection. In the latter case, a tandem of two professors, one in social sciences/humanities and the other in natural sciences/engineering, conduct transformative research in areas relevant to society at a real-world lab. Such research together and in interaction with society covers e.g. autonomous systems, human-machine interaction and accessibility, dealing with risks and risk strategies for the decentralized energy transition.

Transfer of sustainability knowledge is also based on communication through dialog and transfer events, such as "KIT im Rathaus" (KIT at the city hall) and the KIT Science Week that combines a high-level scientific conference of internationally renowned scientists with various events for the public. An already established public event is "Frühlingstage der Nachhaltigkeit" (sustainability spring days at KIT). Transfer of sustainability-related findings to society also takes place via the newly established Karlsruhe Transformation Center for Sustainability and Cultural Change (KAT). The startup, innovation, and transfer center TRIANGEL in the pedestrian area of the city of Karlsruhe serves as a regional contact point for innovators at the interface of science, industry, and society.

For sustainable development to be successful and effective, it is important that all members of society can contribute in the best possible way based on the existing knowledge. KIT develops adequate advanced training offers for an effective transfer of basic knowledge and practical know-how. For example, it sets up and makes available information and guidelines for sustainability in everyday life.

KIT's further training offers also reach persons having a multiplier function. That is why KIT specifically includes the topics of sustainability and sustainable development in its teacher training programs in order to impart to teachers skills relating to sustainability and sustainable transformation.

3. GOAL 3: KNOWLEDGE, AWARENESS, AND SELF-RESPONSIBILITY FOR SUSTAINABLE ACTION

KIT supports the generation of knowledge, creation of awareness, and self-responsibility for sustainable action. It applies the principles of sustainability to its own development and actions.

Sustainability requires the capability of reflecting on the goals and the required measures, of generating specific knowledge, and of creating common awareness in this respect. KIT applies the principles of sustainability to its own development and acting and resolves potential conflicting goals in the best possible way within its framework for action. Doing this, it relies on the responsibility of its staff and members.

3.1. Sub-goal 1:

Based on KIT's sustainability knowledge, its staff and members are aware of the ecological dimension of sustainability as reflected by certifications and audits and they are motivated to contribute to sustainable life, learning, and work at KIT.

KIT applies the principles of sustainability to its own development and action. A practiced sustainability culture in the different facets of daily life, learning, and work at KIT, to which the staff and members of KIT actively contribute at their learning places and workplaces, directly helps to make the society more sustainable and to protect the climate. Based on the comprehensive sustainability knowledge of KIT, its staff and members are aware of the ecological dimension of sustainability as reflected by certifications and audits and they are motivated to contribute to sustainability in life and work at KIT.

Under the University Funding Agreement, KIT has committed to protecting the climate and has made the ecological dimension of sustainability the priority of its sustainability strategy until 2030. For this reason, KIT sharpens the awareness and responsibility of its staff and members in order to support individual contributions to enhancing the sustainability balance of KIT. As regards climate protection and the use of natural resources, activities extend from the reduction of energy consumption to the reduction of water consumption, to avoiding waste, to the more efficient use of IT resources at all learning places and workplaces. Aspects of increasing efficiency in the use of resources and reducing the consumption of resources as a result of changes in operation and workflows and individual changes of conduct in daily studies and work at KIT are included in the central sustainability monitoring scheme. They are

analyzed, processed for reporting in line with the goals specified in the Sustainability and Climate Protection Plan, and accompanied by discussion and reflection formats.

KIT as an institution takes part in various competitions, certification processes, and audits focusing on sustainability principles and their implementation. In 2022, KIT was granted the first National Award – Education for Sustainable Development of UNESCO in the places of ESD category in recognition of its large range of sustainability-related education offers and activities. KIT strives to further develop as a place of education for sustainable development and to continue its successful participation in this competition. Within the scope of its social responsibility, KIT increasingly considers the fair-trade principle in procurement processes and when organizing events and it creates the corresponding awareness. KIT seeks to obtain the corresponding certificates, such as the fair-trade university certificate.

In advancing its own sustainable development, KIT also relies on the self-responsibility of its staff and members. They are aware of and informed about sustainable development and they can actively contribute to a sustainability culture at KIT based on their knowledge. At regular intervals, surveys on KIT's sustainable development will be organized.

3.2. Sub-goal 2:

All institutions and groups shaping KIT's campus life with their manifold social, technical, and cultural activities accompany the sustainable development of KIT. Sustainability is included in KIT's mission statement. A joint mission statement provides orientation for everyone and creates awareness.

Sustainability does not only require the capability of reflecting on goals and the required measures, generating specific knowledge, and creating common awareness. Sustainability also is a common project and effort. All employees and members of KIT, all institutions and groups shaping the life on the KIT campus with their manifold social, technical, and cultural activities accompany the sustainable development of KIT and contribute to it. To create common awareness and obtain a joint understanding of sustainability, KIT initiates a participative process to integrate sustainability in its mission statement. This mission statement is intended to have a motivation and orientation function, while the freedom existing beyond the areas of sovereignty of KIT will not be restricted inappropriately.

Many groups and individual employees and members of KIT have concrete ideas and suggestions as to how they want to contribute to a sustainable development of KIT in their work and learning environment. These suggestions and the associated knowledge are collected systematically, analyzed, assessed, and taken up together with the corresponding organizational units, if applicable.

KIT applies the principles of sustainable action to itself. In its daily business (research and academic education, canteen, events, etc.), it contributes to a sustainable development. Doing this, it will be a role model for other organizations. The expected conflicting goals between sustainable operation, on the one hand, and providing the associated funding, on the other, are identified, addressed transparently, and resolved within KIT's scope of governance and the limits of resources available to KIT.

3.3. Sub-goal 3:

At KIT, sustainable development is practiced in the core tasks as well as in administration and infrastructure. It is considered in all suitable processes. Conflicting goals are identified, addressed transparently, and resolved within KIT's scope of governance and the limits of resources available to KIT, if possible.

Sustainable development is practiced in the core tasks and in the administration of KIT. It is considered in all relevant processes. In line with its character as a cross-cutting topic, a large number of stakeholders have a motivating and executing function in KIT's sustainable development while fulfilling their tasks at KIT. As a result of this high number of stakeholders and their different tasks at KIT, the multi-dimensionality with the ecological, economic, and social dimensions of sustainability and the multitude of sustainability goals may give rise to conflicts. These will be identified and addressed transparently. Solution options will be developed and implemented, if possible, within the scope of responsibilities in the governance structure and within the limits of the resources available to KIT.

Sustainable development at KIT takes place during studies, work, and life on all campuses of KIT. Sustainable campus management also implies the optimization of the design and equipment of buildings and outdoor areas and their integrated analysis with respect to user requirements, use of resources, and operation, to the extent permitted by law and within the limits of the funding available to KIT. Area use concepts that were or will be developed within the framework of new teaching and learning concepts, the New Work project, and digitalization efforts will be taken into account.

The transparent and sustainable use of resources is a goal already contained in the KIT 2025 Strategy for the area of action of Central Administration and Infrastructure. In accordance with the University Funding Agreement HoFV II, KIT has undertaken to observe the climate protection goals of the state and federal governments and feels obliged to the Helmholtz Association's commitment to a sustainable development. In agreement with KIT's Sustainability and Climate Protection Plan and in line with its mission statement including the aspect of sustainability, the business of KIT is analyzed with the focus lying on its own acting, properties, energy, and mobility and will be made more sustainable. KIT strives for an economic use of energy, resources, and areas used for construction and operation activities on all campuses. It reduces its CO₂ footprint by decreasing its consumption of energy and resources in order to help achieve climate neutrality. This requires a long-term assessment of construction activities and energy economy over the complete lifecycle of products, technologies, and infrastructures. Moreover, a transparent representation of consumptions of resources at KIT is needed to enhance resource efficiency. This will enable a KIT-wide discussion of the consumption of resources and the steps required for its reduction, which will then be incorporated and coordinated by the central sustainability management.

KIT establishes the economic use of energy, resources, and areas as a major control criterion in all infrastructural processes over the complete lifecycle of buildings and infrastructures. The optimization of demand through area budgeting and the development and implementation of a refurbishment and energy supply strategy are crucial aspects. Efforts are guided by a reduction of total area demand and the principle of refurbishment before new construction. Following the sustainability guidelines of the Helmholtz Association, KIT establishes a sustainable procurement process that considers economic as well as ecological and social dimensions, with sustainability being a criterion for procurements. Lifecycle analysis of goods and equipment is important. Changing legal framework conditions are considered promptly in processes to invite tenders and award contracts and in the selection of companies and products.

Mobility of the staff and members of KIT considerably contributes to the emissions of KIT and to its consumption of resources. This includes daily commuting to work on the campuses of KIT and mobility to move between KIT's campuses during the day. Business trips constitute a big share in mobility. They have to be in compliance with laws and regulations for climate protection and sustainability. Digitalization options (digital or hybrid events, for instance) must be considered.

KIT's mobility concept is further developed to enhance climate protection, energy efficiency, and sustainability. In this regard, use of public passenger transport systems, timing of the shuttle bus for drives to other campuses of KIT in Karlsruhe, support of the bicycle campus, and car sharing models are considered. Information campaigns to promote sustainable mobility are developed and organized.

Edited by

Karlsruhe Institute of Technology (KIT)

Prof. Dr. Oliver Kraft

Acting President of KIT

Kaiserstraße 12

76131 Karlsruhe

www.kit.edu

Karlsruhe © KIT 2024