



- 1 Acceptance
- 2 Participation
- 3 Transdisciplinarity

## AG AKZEPTANZ FACT SHEET (3): TRANSDISCIPLINARITY

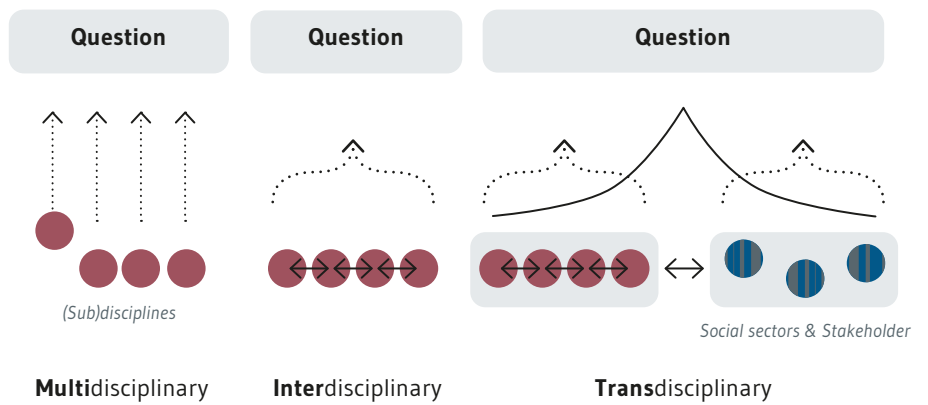
# THE ROLE OF TRANSDISCIPLINARITY FOR THE ENERGY TRANSITION

### WHAT MEANS „TRANSDISCIPLINARY“?

➤ **Transdisciplinary research** approaches aims at collaboration of science (different disciplines) and society (different sectors and actors). In this process, the relevant (research) question is jointly developed.

➤ **Interdisciplinary research** approaches targets collaboration of different scientific (sub)disciplines.

➤ **Multidisciplinary research** is not collaborative, but means a parallel creating of a (research) question by different disciplines.



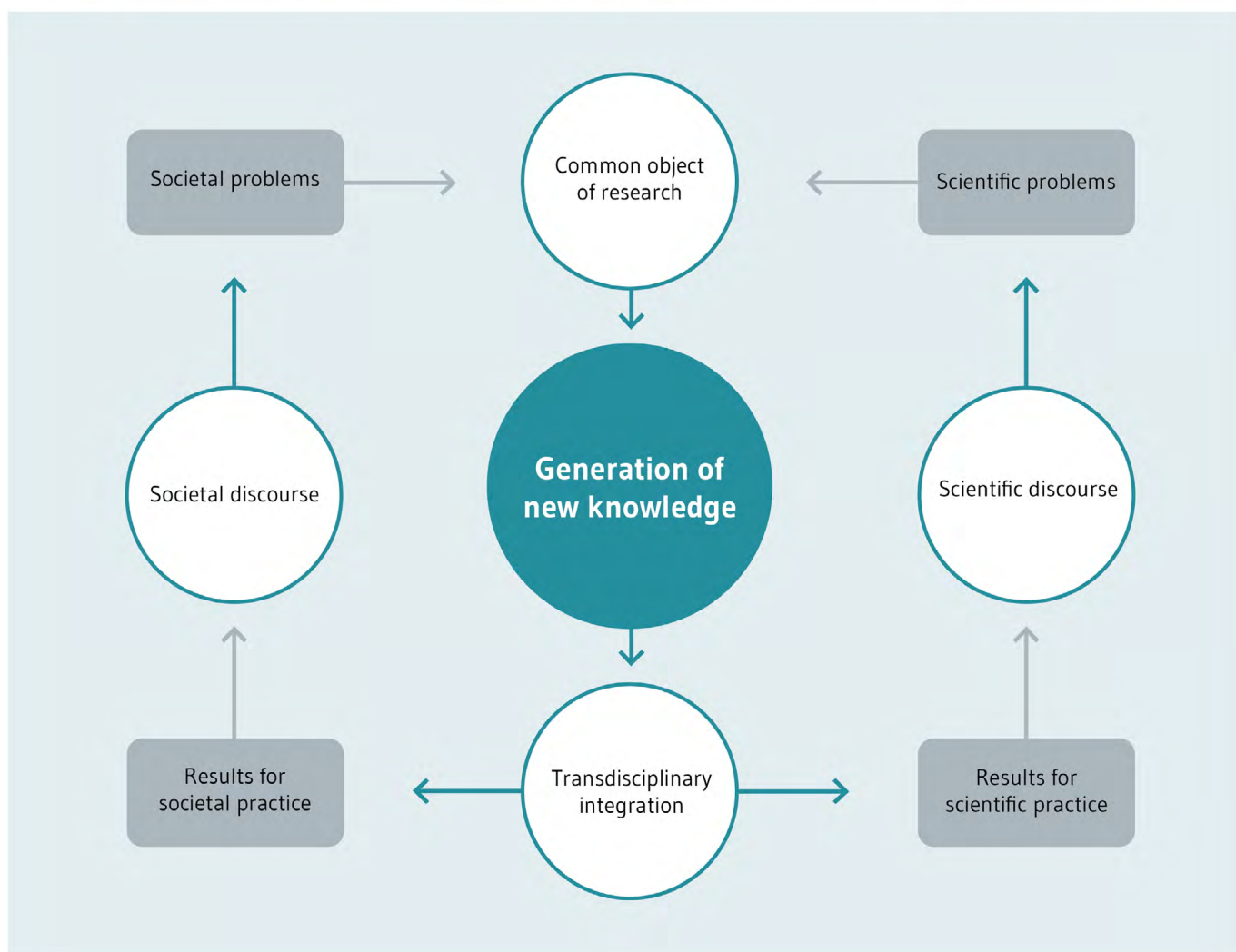
Own representation, 2023

### WHY BRING TRANS-DISCIPLINARY RESEARCH APPROACHES SOCIAL SPHERES TOGETHER?

Usually, knowledge generation in technology-dominated areas, such as energy and technology development, initially takes place between science and companies and is subsequently communicated to various social stakeholder groups. However, the transformation of the energy system can only succeed if social stakeholder groups are not only informed about this transformation, but can also help shape it from the outset (Why?). Stakeholder in civil society, politics and administration bring with them knowledge regarding procedures (How?) and

goals (Where to?) that are important for transformation processes, e.g. new forms of industrial workplaces (Industry 4.0), working time models, users or changes in the electricity market. Transdisciplinarity is an integrative research approach that enables knowledge transfer and collaboration between different social groups and incorporates this knowledge into research. It turns out that such research approach creates knowledge that is „socially robust“ because it incorporates many perspectives, especially in the case of complex societal tasks. A key goal is to support the necessary and ongoing societal transformation processes by means of collaboratively generated societal transformation knowledge.

## The production of new knowledge in the transdisciplinary process



Source: ISOE, 2023

### HOW TO RUN TRANSDISCIPLINARY RESEARCH?

Transdisciplinary approaches are usually characterized by different phases of joint work between researchers and practitioners, which structure the entire research process. Ideally, practitioners should be involved in the research process at a very early stage, at best already during the identification and definition of the topic (problem definition) as well as the conceptualization of the research design and the application (co-design). In reality, this has rarely been the case. In the research process itself, knowledge is to be developed jointly in collaborative formats, for example the development of measures

and innovations to contribute to the solution of the predefined problem. Experimental methods and formats can also be used to test the measures and innovations developed in practice. In any case, the research process is designed as an iterative, discursive-reflexive process (co-production). In addition to an iterative and recursive procedure, a formative evaluation, i.e. a joint assessment of the process and the results during the research process, should be provided, especially in larger projects, as well as a further evaluation after completion of the project (co-evaluation).

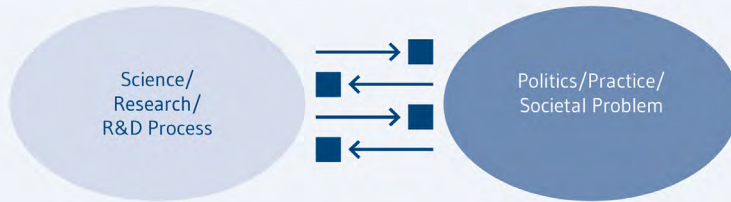
### WHAT DOES IT MEAN „COLLABORATIVE GENERATION OF KNOWLEDGE“?

The core of transdisciplinary research approaches is collaborative learning instead of mere knowledge transfer. In this process not only individual knowledge is exchanged between groups of actors, but new knowledge can be created in joint processes, which are then integrated into the knowledge bases of the actors.

## Collaboration as a characteristic of the transdisciplinary process

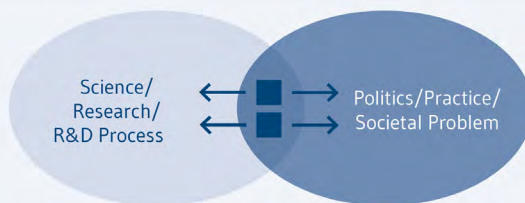
### Transfer of knowledge

Knowledge production for target groups, individual knowledge packages are exchanged



### Collaboration

Joint process of knowledge production and mutual learning



Own representation

## WHICH ADDED VALUE CREATES TRANSDISCIPLINARITY?

The aim is to record in addition to the classic **output** of research, like (scientific) publications and other products, the **outcome**. That means, the extent to which the collaborative work has led to changes and learning effects within the project team (including practitioners). In addition, an evaluation can also aim to measure the **impact** of the project, i.e. the effects in society that the measures and innovations developed have brought about. Ultimately, a transdisciplinary research process always aims to develop knowledge for social practice as well as to gain insights for scientific practice and thus to have an effect in both „spheres“ (**co-dissemination or roll-out**).



Own representation, according to Phineo, 2023

## WHAT CONTRIBUTION DO TRANSDISCIPLINARY RESEARCH APPROACHES MAKE TO ACCEPTANCE?

Participation and transdisciplinarity are not methods to procure acceptance in the population for measures that have already been decided anyway. Rather, participation processes and transdisciplinary research approaches contribute to the acceptability of innovations. This

means that, ideally, they create a space in which a social, sometimes also public, debate between different stakeholders such as researchers, operators/companies, administration/authorities, politics, users/affected parties (citizens), associations, citizens' initiatives/NGOs, etc. is possible and can be shaped at eye level. This engagement with stakeholders outside the research community (e.g., stakeholders in specific roles such as representatives from companies, municipi-

palities, and ministries, as well as citizens) can then potentially lead to acceptance of decisions or implemented innovations, or take them to the next level, e.g., from passive to active acceptance. Whether this is successful depends significantly on the process design, i.e. the quality of participation and the extent to which the results of participation are integrated into the formal process.

# THREE QUESTIONS FOR DR. MELANIE MBAH

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## 1. What challenges in transdisciplinary research are often overlooked?

Transdisciplinary research requires time and resources (financial and personnel). This is especially true at the beginning for the common understanding of a common vision or objectives as well as with regard to the different participants and their boundary conditions for the collaboration. Often, working methods, time and resource budgets as well as expectations of the project differ greatly between science and practice actors. Here it is important to define and reflect on the different roles and expectations and to continuously compare whether the expected goals/effects are being achieved or whether adjustments are necessary. The prerequisite for this is that sufficient time and resources are available, i.e., projects are designed for the longer term and are provided with sufficient resources.

## 2. Which three points should absolutely be fulfilled in order to conduct successful transdisciplinary research?

First, motivation, openness and flexibility of all stakeholders to jointly develop solutions, concepts and the like. This includes the willingness to make changes in the original project design as well as to reconsider one's own positions and, if necessary, to find compromises.

Second, time and resources for collaboration between science and practice, here so-called „integration experts“ or also called interface managers have an important role. This type of research therefore often requires other, longer project periods. Thirdly, that concrete added values arise for the practice actors in each case through the cooperation in the research project. For this, both coordination with regard to goals and concrete outputs is important, as is the implementation perspective.

## 3. What transformations should take place in the research and innovation system itself?

The funding framework conditions should be made more flexible so that they enable collaboration with different stakeholders, i.e. they should also take into account the requirements of practitioners in order to be able to actively participate in research projects. This means that the funding modes should also be adapted to different groups of actors. In addition, it is important for researchers that findings and commitment in transdisciplinary projects are also recognized in the science system. These often cannot be measured with the classical indices, since in transdisciplinary research projects there are often fewer resources available for scientific publications as well as the number of eligible journals is smaller. The focus of transdisciplinary work is mostly on colla-

boration, and resulting outputs are often tailored to concrete practical needs, such as guidelines, videos, etc. In order to avoid trade-offs between scientific and societal effects of transdisciplinary research, structural changes in the academic recognition of transdisciplinary achievements are needed in addition to the societal relevance of research and the orientation towards concrete desired effects. transdisciplinary achievements.

## QUOTED AND FURTHER LITERATURE

- *Report: Akzeptanzforschung in den Kopernikus-Projekten. Gemeinsam für eine sozial robuste Energiewende*
- *ISOE (2023): Der transdisziplinäre Forschungsprozess*
- *Phineo (2023): Wirkung lernen. Für alle, die Gutes noch besser tun wollen.*
- *Fact Sheet 1: Acceptance, Fact Sheet 2: Participation*

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