



SUMMER SCHOOL REPORT

TRINATIONAL SUMMER SCHOOL „EXPERIMENTING WITH TRANSDISCIPLINARY
RESEARCH - USING THE EXAMPLE OF CLIMATE ADAPTATION OF CITIES“

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THE SUMMER SCHOOL

This report provides an in-depth overview of the **Trinational Summer School "Experimenting with Transdisciplinary Research - Using the example of Climate Adaptation of cities"**, a transformative educational program designed to empower 20 PhD and Master students of the Upper Rhine region with the tools and knowledge needed to engage in transdisciplinary research. Throughout this report, we will delve into the core objectives, methodologies, and outcomes of this enriching experience.

01. EXPLORING TRANSDISCIPLINARY RESEARCH

The Summer School served as a dynamic platform for participants to actively explore and experiment with innovative formats and methods of transdisciplinary research. It underscored the significance of breaking down traditional academic boundaries to create a collaborative and holistic approach to complex global challenges.

02. SUSTAINABLE DEVELOPMENT: A CORE FOCUS

The program emphasized the importance of sustainable development, recognizing that our society's progress depends not only on knowledge generation and scientific solutions but also on the development of cutting-edge technologies. To truly succeed in implementing scientific findings, it is essential to consider the social contexts that surround them. This calls for close collaboration between the realms of science and society, a fundamental aspect of transdisciplinary research.

The German-French-Swiss Upper Rhine region, characterized by its vulnerability to heat stress and the looming threat of rising temperatures and prolonged heatwaves, provided an ideal backdrop for our exploration. This region's cities and municipalities face the urgent need to develop effective strategies and measures for adaptation.

03. REAL-WORLD PROBLEM SOLVING

Under the guidance of the municipality of Emmendingen, participants were tasked with addressing four specific climate adaptation challenges. These real-world issues formed the basis for collaborative work in four distinct working groups, each comprised of five participants. The ultimate goal was to collectively craft transdisciplinary process designs to tackle these pressing challenges.

A JOURNEY OF DISCOVERY

In this report, we'll approach the unique experiences, insights, and achievements of myself and the other participants during the Summer School. We will examine the innovative methods tested, the transformative ideas generated, and the collaborative spirit that defined this educational endeavor.

The Trinational Summer School "Experimenting with Transdisciplinary Research - Using the example of Climate Adaptation of cities" represents a powerful model for engaging with pressing global issues in a meaningful and impactful way. This report offers an in-depth exploration of this transformative educational experience and the valuable contributions it has made toward the advancement of transdisciplinary research and sustainable development.



PROGRAM

The Summer School program was divided into five very busy days, where the activities proposed varied from theoretical presentations made by experts to practical workshops and presentations where the participants were in focus. Down below, some highlight of the program:

DAY

01.

CHECK-IN & INTRODUCTION TO TRANSDISCIPLINARITY

- PRESENTATIONS (OF THE SUMMER SCHOOL AND THE PARTICIPANTS)
- TALKS ON TRANSDISCIPLINARY RESEARCH

DAY

02.

CLIMATE ADAPTATION IN THEORY AND PRACTICE

- BUS TRIP TO EMMENDINGEN
- PRESENTATION FROM THE CITY AND TOUR OF THE CITY CENTRE

DAY

03.

TRANSDISCIPLINARY FORMATS AND METHODS

- INTRODUCTION TO FIVE TRANSDISCIPLINARY FORMATS
- ROUNDTABLE DISCUSSION WITH CITY REPRESENTATIVES FROM CH/FR/DR ON CLIMATE ADAPTATION

DAY

04.

INTENSIVE GROUP WORK

- GROUP WORK AND DEVELOPMENT OF A GROUP PRESENTATION
- TEST RUN OF GROUP PRESENTATIONS

DAY

05.

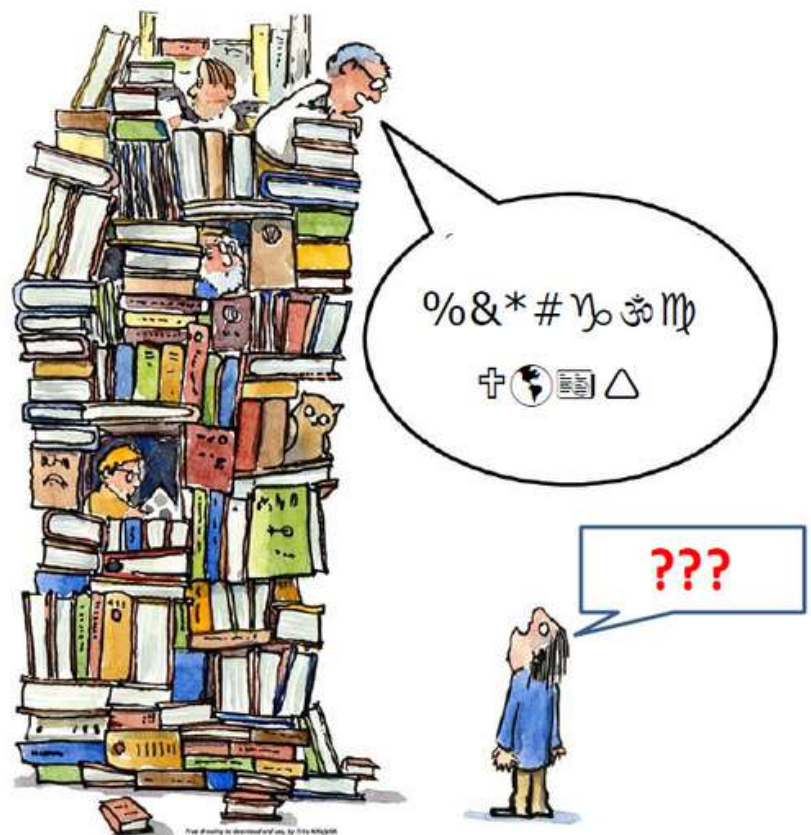
PRESENTATION OF THE RESULTS

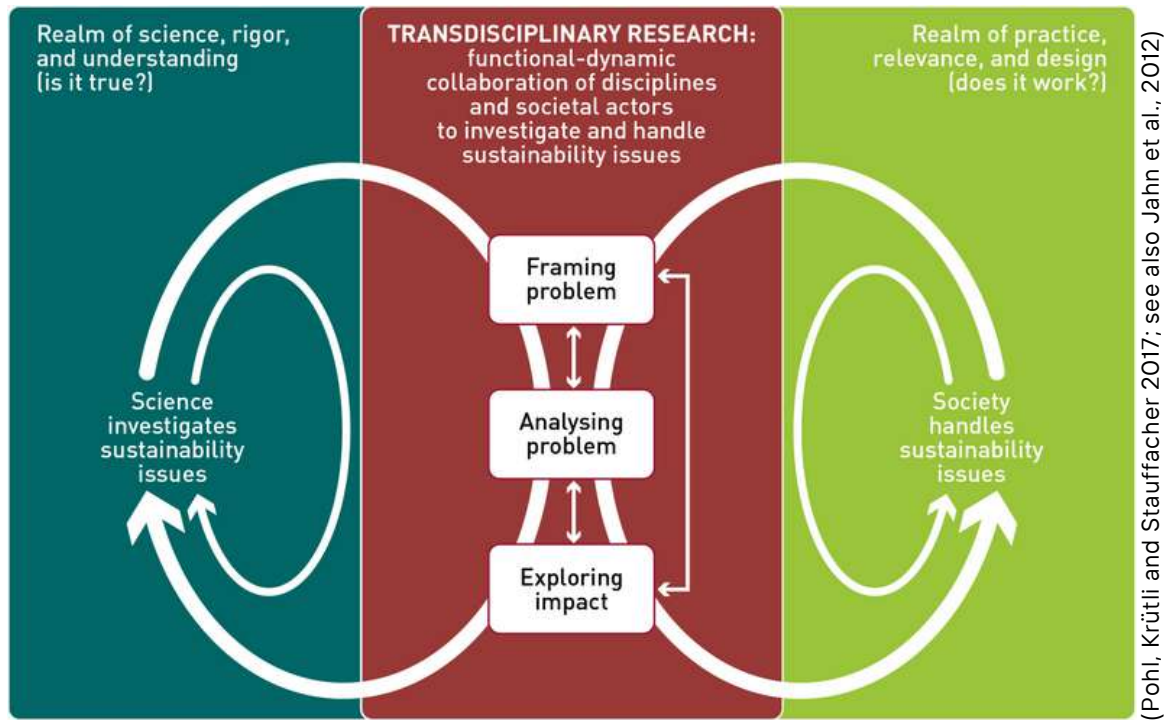
- PRESENTATION OF THE GROUP WORK RESULTS IN THE CITY HALL OF EMMENDINGEN
- REFLECTION AND EVALUATION

TRANSDISCIPLINARITY

The main theme of the summer school, transdisciplinarity, has a well-established history in academic discussions and is increasingly advocated as a suitable approach for addressing pressing societal issues like climate change. Despite its growing popularity, it has not yet gained firm academic recognition, and current funding practices in universities and research institutions often do not effectively support it. One key challenge is the lack of a universally accepted definition for transdisciplinarity, which results in a deficiency of quality standards that can guide researchers, program managers, and donors uniformly.

Firstly, transdisciplinarity is commonly understood to extend beyond the scope of interdisciplinarity, though there is no unanimous consensus on the specifics of this extension. Some view it as problem-oriented, emphasizing its focus on addressing tangible, real-world issues. Others assert that transdisciplinarity represents a distinct form of interdisciplinarity, characterized by the transcending of disciplinary boundaries. In this view, it involves the integration of knowledge and perspectives from diverse scientific disciplines and even non-scientific sources.





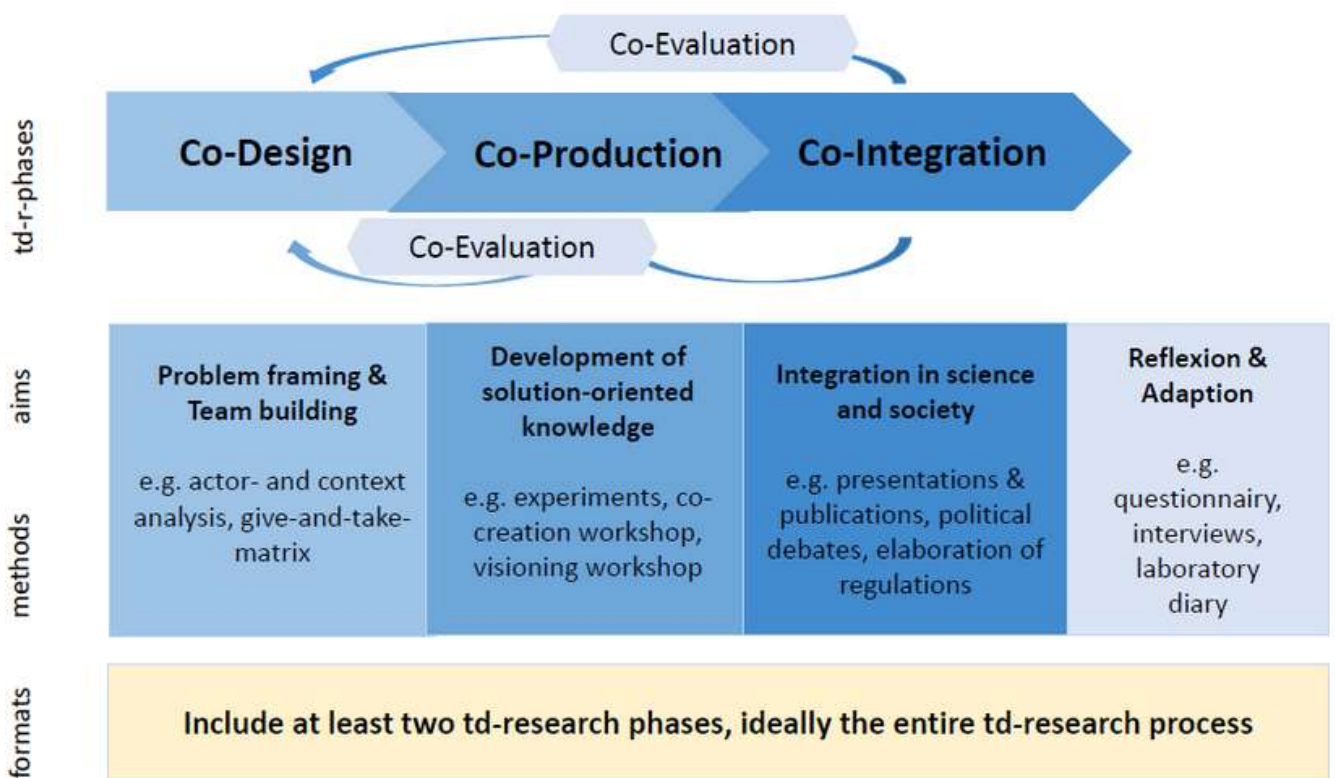
Furthermore, transdisciplinary research is often likened to action research, suggesting that it requires active participation and iterative learning cycles from the outset. This participatory approach extends to joint problem framing or co-design, wherein the research process collaboratively identifies key issues.

Additionally, transdisciplinarity aims to enhance the knowledge of all participants, encompassing local knowledge, scientific expertise, and the insights of relevant industries, businesses, and non-governmental organizations. This collaborative knowledge production, often referred to as co-production, is a hallmark of transdisciplinary research.

WHAT IS TRANSDISCIPLINARITY?

Crucially, transdisciplinarity is not solely an academic exercise; it intends to bring about real change. It strives to meet the needs of both the scientific community and practical applications, emphasizing the importance of bridging the gap between theory and practice.

In essence, while the precise definition of transdisciplinarity may be a matter of debate, these key elements serve as guiding principles for understanding its essence and application in research and problem-solving contexts.



Source: Own depiction based on Lawrence et al. 2022, Jahn et al. 2012, Bergmann et al. 2012 and Lang et al. 2012.

CONTEXT IN TD-RESEARCH

The context of a transdisciplinary research project is a complex and multifaceted landscape. It encompasses various elements, including the spatial and socio-political environment in which the project operates. The project is often focused on a specific field of action, such as energy, mobility, or urban development. Within this context, there exists a specific institutional and legal framework that governs the project's activities.

This framework involves unique constellations of actors, including researchers, policymakers, practitioners, and community members, who come together to collaborate on addressing societal challenges.

Moreover, transdisciplinary research projects unfold in specific places, each with its own set of meanings, memories, and perceptions. These contextual factors are not to be underestimated, as they can exert a significant influence on the project's trajectory and outcomes. Understanding and navigating this intricate web of context is essential for the success and relevance of transdisciplinary research endeavors.

TRANSDISCIPLINARY FORMATS AND METHODS

WHY DO WE NEED DIFFERENT FORMATS OF TD RESEARCH?



ARTISTIC INTERVENTIONS



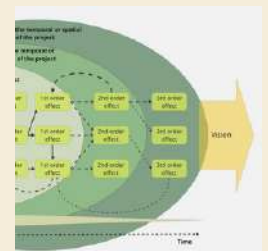
TEN STEPS



REAL-WORLD LABS



REGULATORY EXPERIMENTS



THEORY OF CHANGE

The need for diverse formats of transdisciplinary (TD) research arises from the evolving nature of societal challenges and the dynamic contexts in which research projects are undertaken.

Societal challenges, financial resources, time, involved disciplines and actors are not static; they continuously evolve. Therefore, TD research formats need to be adaptable to address emerging issues effectively. Different formats allow researchers to tailor their approaches to the specific challenges at hand, ensuring relevance and responsiveness.

Formats specifically facilitate collaboration among diverse stakeholders by providing a common framework and language. They create a shared understanding of roles and responsibilities, which can enhance communication and cooperation.

The diversity of TD research formats is essential to meet the evolving demands of complex societal challenges and adapt to the unique contexts of research projects. These formats serve as adaptable tools that help researchers focus on specific aims, structure their research processes, and foster collaboration among diverse stakeholders, ultimately contributing to more effective and relevant solutions for pressing issues.

ARTS-BASED FORMATS

e.g. Heinrichs, H., Hoernemann, D. (2023): Sustainable development through aesthetic expertise? Results and reflection on an experimental case study on arts science policy intervention. *Vis Sustain*, 19, 1 27 http://dx.doi.org/10.13135/2384_8677/7311



Arts-based formats play a significant role in fostering transdisciplinarity, particularly in the context of co-production, co-integration, and co-evaluation phases. These formats are characterized by their ability to provoke experimental situations, inspire visionary thinking, and contribute to the redesign of spaces and everyday practices.

The primary aim of arts-based formats within transdisciplinary contexts is to provoke fresh perspectives and responses. These formats seek to motivate participants to envision alternative futures and reimagine the ways in which spaces and daily life are experienced.

These formats allow for a flexible and open-ended approach. They distinguish between free art formats, where artistic expression takes precedence, and artistic practice as an integral part of research. There is no fixed procedure to follow, and these formats often take the shape of workshops, studios, or open-access cafés, facilitating exchange and interaction.

Arts-based formats are primarily designed to engage interested individuals from the public sphere, often referred to as the "non-organized public." These formats do not typically impose formal participation requirements, making them accessible to a broader audience. Unlike some other transdisciplinary approaches, arts-based formats may involve less structured co-design, relying more on intuitive access and creative expression.



THE 10 STEPS APPROACH

A critical review of to what extent and in what way a research project is embedded in the realm of science and practice

OBJECTIVES OF THE TEN STEPS

For td researchers: analyse your project and identify potentials for improving the science-practice interfaces

For other researchers: analyse your project and reflect how your project is embedded in the broader societal context

For both: knowing how to use a set of questions for further iterative refinements after consultation of literature, (scientific) experts and stakeholders

GENERAL STRUCTURE OF THE 10 STEPS

Steps 1 to 4 help you (re)framing your research project and how it relates to social problems
>> problem focus

Steps 5 to 9 help you designing interactions with other disciplines and social actors
>> people focus

Important: it is a iterative process, so steps 5 to 9 might indicate that you need reframing your research (again)





REFERENCES FOR THE 10 STEPS

Bryson, J. M. (2004). *What to do when stakeholders matter: stakeholder identification and analysis techniques*. *Public management review*, 6(1), 21-53.

Fiorino, D. J. (1990). *Citizen Participation and Environmental Risk - a Survey of Institutional Mechanisms*. *Science Technology & Human Values* 15(2): 226-243

Flinterman J.F., Teclemariam-Mesbah R., Broerse J.E.W. et al. (2001). *Transdisciplinary: the new challenge for biomedical research*. *Bulletin of Science, Technology & Society*, 21(4), 253-66.

Jahn, T., Bergmann, M. & Keil, F. (2012). *Transdisciplinarity: Between mainstreaming and marginalization*, *Ecological Economics*, 79,1-10.

Klein, J. T., Grossenbacher-Mansuy, W., Häberli, R., Bill, A., Scholz, R. W. & Welti, M. (Eds) (2001). *Transdisciplinarity: Joint Problem Solving among Science, Technology, and Society*. Basel: Birkhäuser Verlag.

Krütli, P., Pohl, C., & Stauffacher, M. (2018). *Sustainability Learning Labs in Small Island Developing States: A Case Study of the Seychelles*. *GAIA - Ecological Perspectives for Science and Society*, 27(1), 46-51. doi: 10.14512/gaia.27.S1.11

Pohl, C., Krütli, P. & Stauffacher, M. (2017). *Ten reflective steps for rendering research societally relevant*. *GAIA* 26(1): 43-51

e.g. Bergmann, M.; Schöpke, N.; Marg, O. et al. (2021): Transdisciplinary sustainability research in real world labs : success factors and methods of change . Sustainability science . [<https://doi.org/10.1007/s11625-020-00886-8>]

Real World Labs operate with the primary aim of developing collaborative solutions to complex societal problems. These labs serve as dynamic spaces where innovative ideas are put into practice, with a focus on testing technological or regulatory innovations and fostering their adoption in real-world contexts.

The central aim of Real World Labs is to collaboratively address a pressing societal problem. Whether it's related to sustainability, urban development, healthcare, or other critical issues, these labs are driven by the goal of finding effective solutions.

Real World Labs engage in collaborative prototyping, which involves designing and testing potential solutions in a participatory manner. This approach encourages active involvement from diverse stakeholders, including researchers, practitioners, and community members. They encompass transdisciplinary phases throughout their operation. This means that experts from various fields come together to contribute their knowledge and insights, breaking down traditional disciplinary boundaries.



The specific design and structure of transdisciplinary phases within Real World Labs can vary depending on several factors. These include the focus of the lab (e.g., sustainability, healthcare), the field of action it addresses, and the composition of the project team. The central components of these phases, however, often revolve around experimentation and reflection.

Real World Labs are highly adaptable and context-specific. The combination of methods and the intensity of the experimental approach can vary significantly based on the field of action. For instance, a lab addressing environmental sustainability may employ different methods and intensity levels compared to one focusing on healthcare innovation. The specifics of each lab are tailored to the unique challenges and opportunities within their respective domains.

In essence, Real World Labs are dynamic and versatile spaces that bring together diverse expertise to collaboratively tackle complex societal issues. They prioritize experimentation, reflection, and adaptability, allowing them to respond effectively to the distinct demands of their field of action.

THEORY OF CHANGE

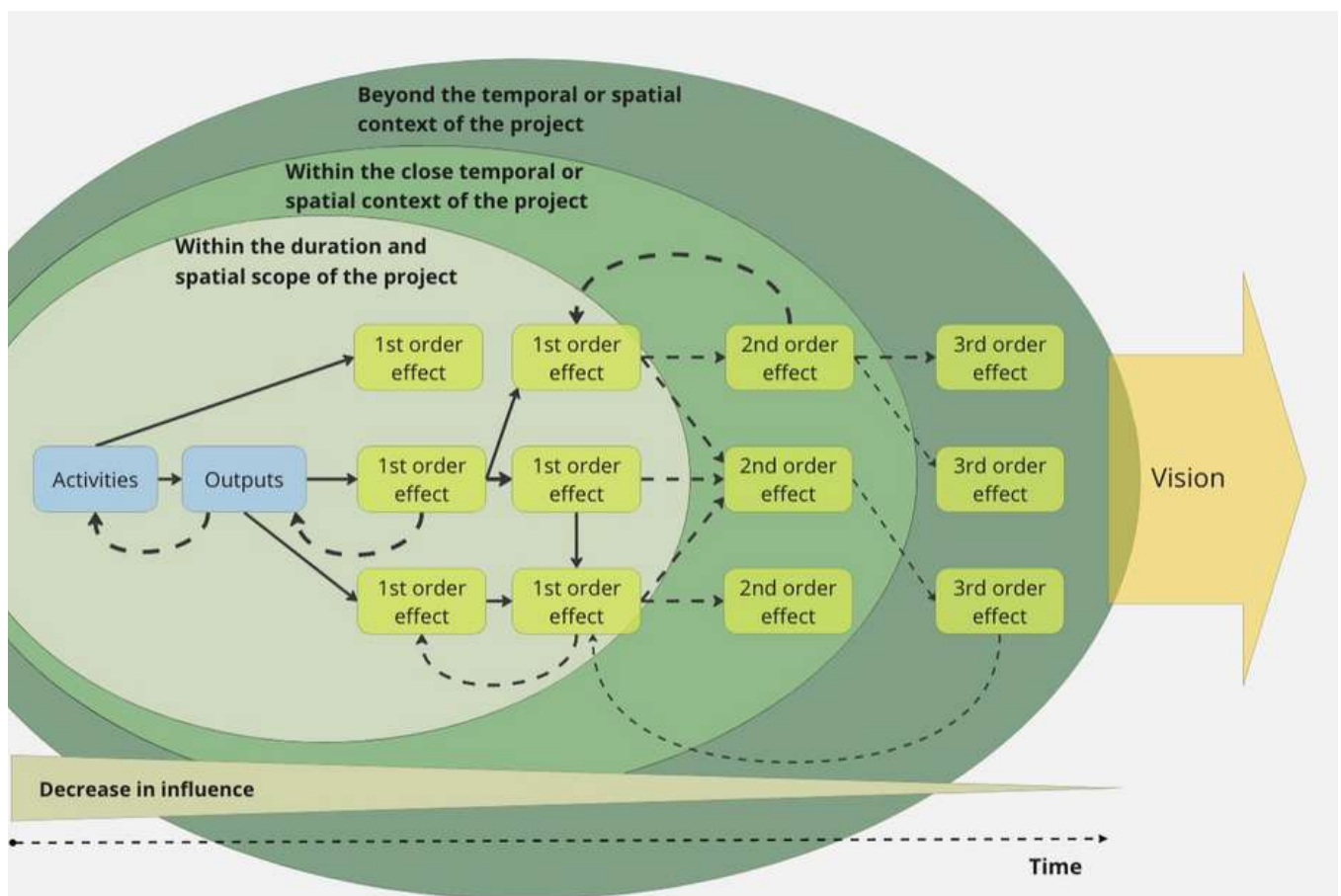
Belcher, B. & Claus, R. (2020). *Theory of Change*. *td-net toolbox profile (5)*. Swiss Academies of Arts and Sciences: https://naturalsciences.ch/co-producing-knowledge-explained/methods/td-net_toolbox/theory_of_change

•Deutsch, L.; Belcher, B.; Claus, R.; Hoffmann, S. (2021). *Leading inter- and transdisciplinary research: Lessons from applying theories of change to a strategic research program*. *Environmental Science & Policy* 120: 29–41.

•Mayne, J. (2020). *Sustainability Analysis of Intervention Benefits: a Theory of Change Approach*. *Canadian Journal of Program Evaluation* 35/2.

A Theory of Change (ToC) is a dynamic model that illustrates how and why certain activities lead to a process of change. It's important to note that a Theory of Change is not a single theory; rather, it encompasses a set of interconnected theories that help explain the underlying mechanisms of change.

Socio-ecological systems are inherently complex, with multiple interacting components and non-linear causal processes. In such systems, change is often the result of numerous interactions and feedback loops among various elements. A Theory of Change seeks to unravel this complexity by identifying the main actors involved and the sequence of steps they take to bring about change.





One key aspect of a Theory of Change is the specification of the theoretical reasons behind the anticipated changes. It delves into the underlying assumptions and hypotheses about how specific interventions or activities will produce the desired outcomes.

Beyond being a theoretical construct, a Theory of Change serves practical purposes as well. It can be a valuable planning tool, helping organizations and researchers design interventions that are more likely to be effective. It also serves as a framework for evaluation, allowing stakeholders to assess whether the expected changes are occurring as a result of the planned activities.

Moreover, a Theory of Change can be employed as an analytical tool to understand the complexity of a given situation and guide decision-making processes. It helps in identifying key leverage points and areas where interventions are likely to have the greatest impact.

One notable feature of a Theory of Change is its transferability to non-research contexts. While it is frequently used in research and evaluation, its principles and concepts can be applied to a wide range of scenarios, including program development, policy formulation, and community initiatives. By providing a structured approach to understanding and driving change, a Theory of Change is a versatile tool for addressing complex challenges in various domains.

REGULATORY EXPERIMENTS

Bauknecht, D., Heyen, D. A., Gailhofer, P., Bizer, K., Feser, D., Führ, M., Winkler-Portmann, S., Bischoff, T. S., Proeger, T. (2021). How to design and evaluate a Regulatory Experiment? A Guide for Public Administrations. Freiburg, Berlin, Göttingen, Darmstadt.

https://reragi.files.wordpress.com/2019/04/regulatory_experiments-guide_for_public_administrations.pdf



Regulatory experiments represent a deliberate departure from the established regulatory framework, allowing for the exploration of new and alternative rules within real-world contexts. These experiments hold the potential to drive regulatory learning for sustainable development, a crucial consideration in an era where it can be challenging to ascertain future sustainability solutions within the confines of existing regulations.

One of the core challenges in addressing sustainability issues lies in the fact that current regulatory structures may not always align with the evolving needs of our rapidly changing world. Regulatory experiments offer a way to bridge this gap by providing opportunities to assess and experiment with innovative regulatory approaches in practice.

By deviating from existing regulations, these experiments enable policymakers and regulators to gain valuable insights into the benefits, costs, and potential side-effects of new rules. This empirical knowledge can be instrumental in designing more effective and efficient regulations that are better equipped to address contemporary challenges, particularly those associated with sustainability.

Regulatory experiments, including Regulatory Sandboxes and Regulatory Innovation Trials, serve as essential tools in advancing regulatory learning and adapting to the demands of sustainable development. They provide avenues for proactive regulatory exploration, foster better understanding of emerging technologies, and enable the development of regulatory frameworks that are responsive to the evolving needs of society. By embracing these innovative approaches, regulators can better navigate the complexities of our ever-changing world and drive progress toward sustainable development goals.

THE FORMATS

A CONCLUSION

The diverse formats in transdisciplinary research play a crucial role in structuring the research process and guiding researchers toward their objectives. These formats offer researchers the flexibility to choose the most suitable approach for their specific context and goals. Additionally, researchers have the option to combine different formats to create a holistic and comprehensive approach to tackling complex societal challenges.

Ultimately, the choice of format depends on the research project's aims, the desired level of structure, and the extent of participation sought, allowing for adaptability and innovation in addressing multifaceted issues.



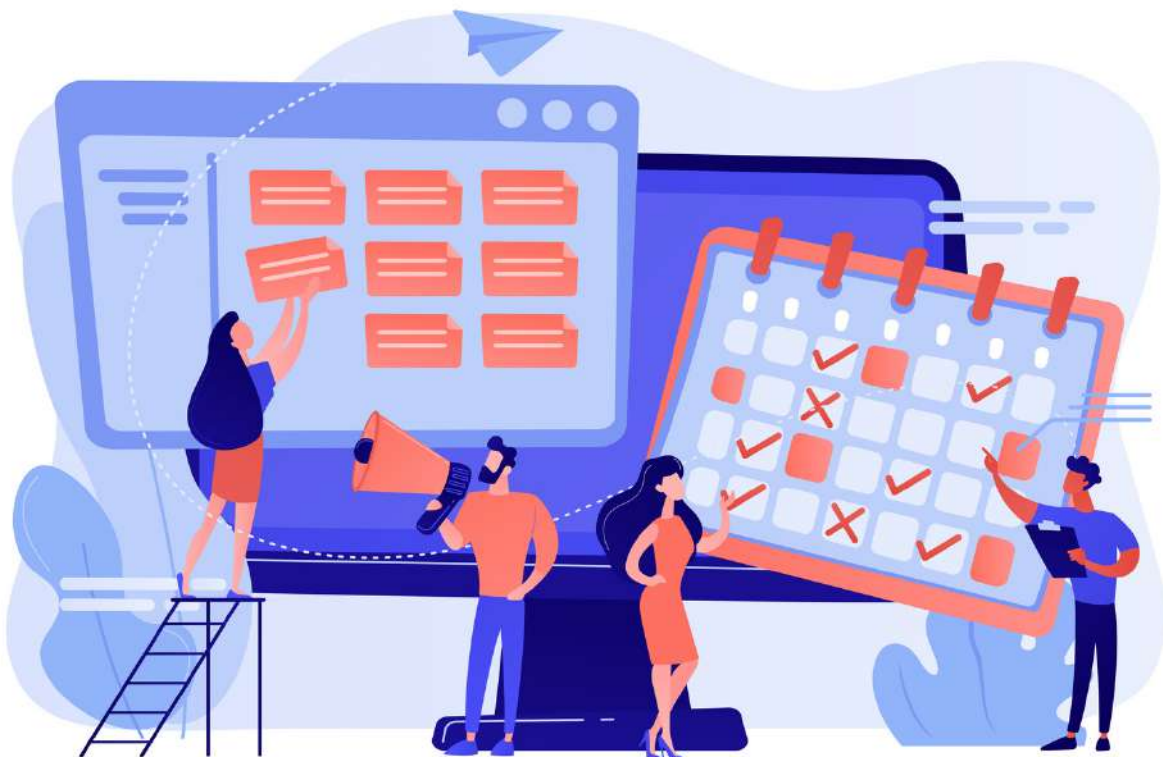
THE CITY OF EMMENDINGEN

Emmendingen, nestled in the region of southwest Germany, provided the backdrop for our collaborative group work during the Trinational Summer School on "Experimenting with Transdisciplinary Research - Using the example of Climate Adaptation of cities."

Emmendingen is characterized by its idyllic surroundings, with lush green landscapes, rolling hills, and serene riverbanks. Its historic architecture and well-preserved city center reflect the city's deep-rooted traditions. However, this charming facade belies the pressing challenges that Emmendingen, like many cities worldwide, faces due to climate change.

The region's vulnerability to heat stress, coupled with the looming threat of rising temperatures and prolonged heatwaves, makes climate adaptation a paramount concern. The city and its surrounding municipalities are at the forefront of addressing these challenges, necessitating innovative strategies and effective measures to ensure the well-being of its residents.

In this dynamic and collaborative environment, we were not only able to contribute meaningfully to addressing Emmendingen's climate adaptation challenges but also gained valuable insights and experiences that will undoubtedly inform our future endeavors in sustainability research.



GROUP WORK

Our group task was to **develop a transdisciplinary process that supports the development of criteria in tension between redensification and open space preservation in the city of Emmendingen.**

This task presents Emmendingen with a couple of challenges: First, how can the city weigh the inputs of different actors for decision making? Second, how can citizens be more involved in decision-making processes, both through participation and being informed?

We observed that the city attempted to address these challenges in 2019 with the City Development Concepts for 2035. However, it did not have the desired impact, because there were conflicts with actors such as Haselwald Spitzmatten, alongside data analysis complications and resource limitations.

Seeing these problems, we came up with three main objectives: We want to provide a map for improving participation processes for the community regarding envisioning Emmendingen's future. We also want to improve communication to citizens, and improve decision-making processes for the city council.

Seeing these problems, we came up with four main objectives based in the creation of community based research (TDR):

- Improve participation processes for community regarding envisioning Emmendingen's future
- Solution backed by data
- Improve communication to citizens; educating and informing
- Improve decision-making process for city council



GROUP 4 - FROM LEFT TO RIGHT: VINCENT LECOMTE - TOPOGRAPHY (UNIVERSITY OF STRASBOURG), LEONIE BURKE - GEOGRAPHY OF GLOBAL CHANGE (UNIVERSITY OF FREIBURG), ISADORA CAMPOS TORRES - ARCHITECTURE AND URBAN PLANNING (UNIVERSITY OF STRASBOURG), JORDAN RYDMAN (ENVIRONMENTAL SOCIAL SCIENCE, SUSTAINABILITY (UNIVERSITY OF FREIBURG), VERENA HELEN VAN ZYL-BULITTA - ENERGY JUSTICE, REGENERATIVE FINANCE (UNIVERSITY OF FREIBURG), REBECCA LOVATO FRANCO - SUSTAINABLE SYSTEMS ENGINEERING (UNIVERSITY OF FREIBURG)

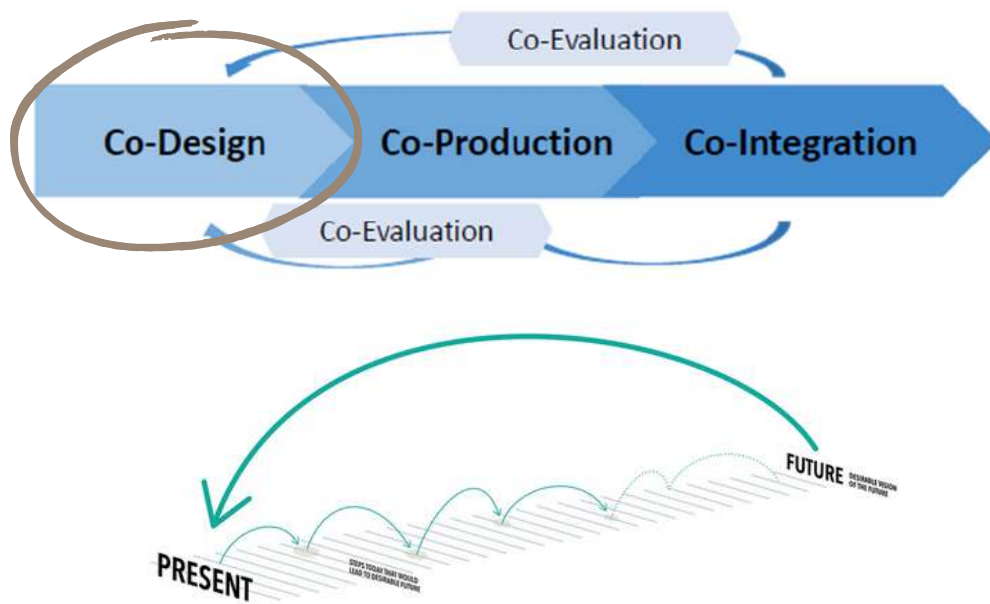


Figure 5 Backcasting to a Desirable Future. Adapted from *The Natural Step* (2011).

Through the development of this procedure, we engaged in the co-designing phase of a Transdisciplinary research endeavor, focusing on problem definition and team formation.

We established our project foundation by adhering to the 10-step approach, adopting a forward-looking approach, and implementing the concept of backcasting. Our initial inquiry revolved around envisioning the desired future state. Subsequently, we analyzed the necessary present-day actions to bridge the gap between our vision and the current situation. In this manner, we structured our process based on our end goal, working backward in time.

OUR SUGGESTION

Our approach rests on two pillars: Research and Community Participation.

We aim to empower Emmendingen's residents to co-create their city through increased community involvement. In order to do this, we propose fostering social participation to enhance community cohesion and inform decision-making, with an eye on data collection for future research.

Additionally, our research focuses on addressing societal issues through citizen participation, utilizing data from community gatherings to find solutions.

RESEARCH + COMMUNITY PARTICIPATION

Research Problems

address societal problems through citizen participation

Social participation

offers opportunities for data collection, for further research, and self-determination

A NEED FOR COMMUNITY-BASED RESEARCH

Recognizing Emmendingen's strong community tradition, we suggest organized theme-based gatherings. These meetings would involve specialists and stakeholders, who may also collect data. The format includes simplified data presentations, facilitated workshops, and data sharing. We also recommend providing quality food and using neutral venues for an inclusive and empowering atmosphere.

Research is a critical tool for informed decision-making in Emmendingen, especially when dealing with social parameters. It helps transform qualitative factors into quantifiable data, providing insights into the community's needs. By collecting and analyzing data on social parameters, the city can identify general decision-making guidelines.

For example, a survey assessing residents' views on climate change adaptation strategies can guide policy development. Research outcomes offer evidence-based insights for effective and responsive decision-making, allowing Emmendingen to address current challenges while planning for the future in alignment with community expectations.

SUGGESTED FORMATS

Within the framework of our community-oriented methodology, we propose various intervention formats to enhance community gatherings and raise awareness among community members. These formats serve as effective communication tools, aiding in the visualization of city-related issues and fostering a sense of civic involvement in decision-making processes.



ART INTERVENTIONS

- Research data collecting
- Sensitize
- Communicate scientific data with common language
- Reaching to society
- Participation process (Open Science)

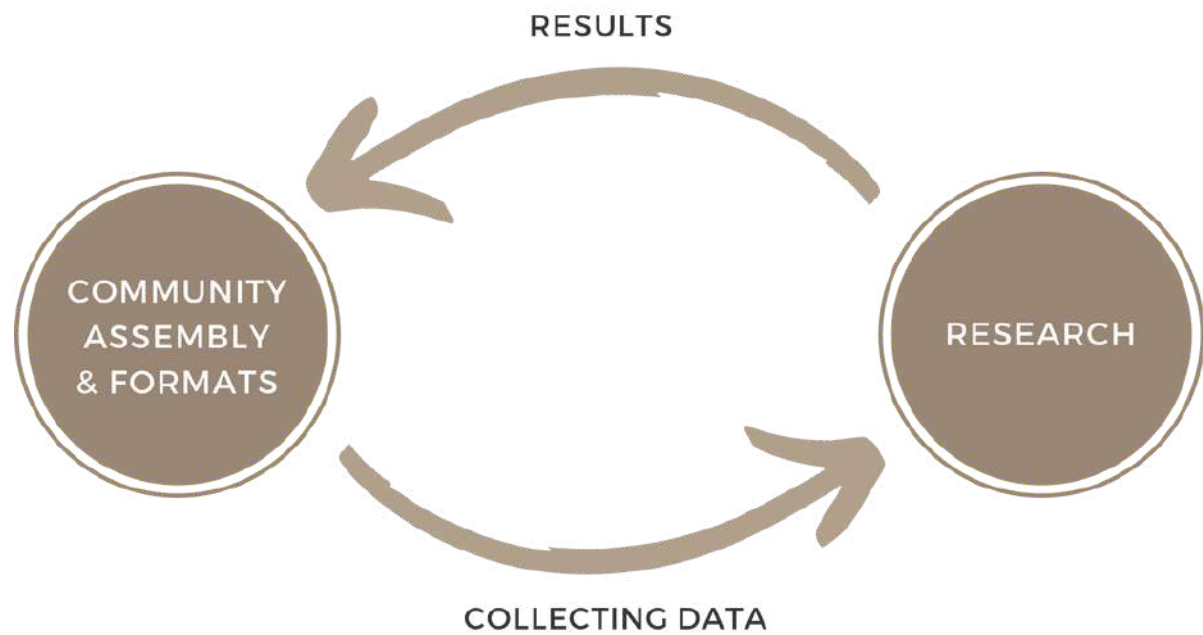
Emmendingen can collaborate with students to create art installations like the one at Zurich University. These installations would visualize future sustainability goals. Citizens can then give feedback via mailboxes or a QR code-linked webpage, allowing them to shape the city's growth and green initiatives.



REAL WORLD LABS

- Research data collecting
- Sensitize through immersion
- Testing and outcome
- Participation process (Open Science)

In the context of Emmendingen, where community engagement is highly valued, a "Real-World Lab" presents an exciting opportunity to pilot a new type of citizens' council. This innovative council could serve as a platform for deliberation, collaboration, and problem-solving, bringing together a diverse group of residents to jointly address key issues facing the city.



OUTCOMES

Our proposed methodology for enhancing decision-making in Emmendingen is designed to achieve specific and desirable outcomes that benefit both the city and its residents. Here are the key results we aim to attain:

1. Improved Citizen Participation: Our foremost goal is to foster a deeper sense of community involvement and engagement. By actively involving citizens in decision-making processes, we aim to create a more inclusive and democratic environment where everyone's voice is heard and valued.

2. Enhanced Communication with the Community: We aspire to establish a robust and transparent communication channel between the city's administration and its residents.

3. More Structured and Fruitful Decision-Making on Redensification and Open Spaces: One of our primary objectives is to enhance the quality of decision-making, particularly in complex areas like redensification and open spaces.

4. Improved Resources and Partnerships for Data-Backed Impacts: We aim to strengthen the city's resources and partnerships by collaborating with academic institutions, students, and local organizations. These collaborations, supported by data-driven decision-making, enable us to create meaningful and impactful changes that benefit the community.

ENVISIONING EMMENDINGEN'S FUTURE: A HOLISTIC APPROACH

Our vision for Emmendingen's future is intricately linked to the methodology we propose. We foresee a dynamic and participatory network where residents take an active role in shaping the city's evolution. In this envisioned future, open and inclusive discussions about city changes become the norm, providing a platform for diverse voices to be heard and considered.

Simultaneously, the data collected through this methodology forms the bedrock upon which informed and science-based decisions are made. This data, characterized by its quantitative rigor, empowers decision-makers with evidence that guides the city toward sustainable development. It is not merely a set of statistics but a rich source of insights, allowing for the formulation of policies and initiatives that align precisely with the needs and aspirations of Emmendingen's residents.

This holistic approach transcends traditional decision-making paradigms, offering a transformative journey where Emmendingen's vision for the future becomes a tangible reality. It is a future marked by informed choices, sustainable development, and inclusivity, reflecting the collective dreams and ambitions of its engaged and empowered residents. In essence, our methodology paves the way for a brighter and more prosperous future for Emmendingen and its community.



CONCLUSION



My participation in the Trinational Summer School "Experimenting with Transdisciplinary Research - Using the example of Climate Adaptation of cities" was an enriching and transformative experience that has had a significant impact on my ongoing thesis work.

During this week-long program in Germany, incredibly well-organized by Eucor, I had the privilege of collaborating with a diverse group of fellow Master's and PhD candidates, coming from various knowledge backgrounds. This diverse and cohesive group of individuals quickly became friends, and our interactions greatly contributed to the overall success of the summer school. The opportunity to build this network of like-minded peers has proven invaluable.

The core focus of the summer school, sustainable development, deeply resonated with my thesis work. The program underscored the critical importance of sustainable development, emphasizing that the progress of our society not only hinges on knowledge generation and scientific solutions but also relies on the development of innovative technologies. To effectively implement scientific findings, it is imperative to consider the social contexts in which they are applied.

The chosen backdrop for our exploration, the German-French-Swiss Upper Rhine region, is particularly vulnerable to heat stress and faces the imminent threat of rising temperatures and prolonged heatwaves. This region's cities and municipalities are confronted with the urgent task of developing adaptive strategies and measures—a challenge closely aligned with the climate change adaptation aspects of my research.

A pivotal aspect of the summer school was the opportunity to apply our knowledge in group work. Under the guidance of the municipality of Emmendingen, we were tasked with addressing four specific climate adaptation challenges, which served as real-world case studies. These challenges formed the foundation for collaborative work within four distinct working groups, each consisting of five participants. The ultimate objective was to collectively design transdisciplinary processes to address these pressing challenges.

The skills, methodologies, and perspectives gained during this summer school experience have been amazing. The ability to engage in transdisciplinary research, foster collaboration, and consider societal contexts has enhanced my approach to my own thesis' work. The insights and tools acquired through this experience have enriched my research, enabling me to explore innovative solutions in my field. This summer school has not only broadened my horizons but has also equipped me with a more holistic and impactful approach to my thesis work, ultimately contributing to its depth and relevance.



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SOURCES OF THE VARIOUS ILLUSTRATIONS IN THE SUMMER SCHOOL REPORT VON ISADORA CAMPOS-TORRES

p. 6	Source: Free drawing to download and use, by Frits Ahlefeldt (modified) From the presentation of Prof. Dr. Matthias Bergmann "Transdisciplinary Research – Why and How"
p. 7	Source: Pohl, Krütli and Stauffacher 2017; see also Jahn et al., 2012) From the presentation of Dr. Pius Krütli, "Ten reflective steps for rendering research societally relevant"
p. 8	Source: Own depiction based on Lawrence et al. 2022, Jahn et al. 2012, Bergmann et al. 2012 and Lang et al. 2012. From the presentation of Dr. Melanie Mbah, "Overview on innovative formats and methods of transdisciplinary research"
p. 9 (from left to the right)	1- From the presentation of Daniel and Jennifer Hoernemann-Waldbrodt "Artistic projects and interventions" 2- From the presentation of Dr. Pius Krütli, "Ten reflective steps for rendering research societally relevant" 3- From the presentation of Dr. Markus Egermann "Introduction to Real World Labs" 4- From the presentation of Prof. Dr. Dierk Bauknecht, "Regulatory Experiments" 5- Source: Wiefek & Nagy (2023), based on Belcher et al. (2020) and Schäfer et al. (2021); From the presentation of Dr. Jasmin Wiefek, "Theory of Change"
p. 10 (2 images)	From the presentation of Daniel and Jennifer Hoernemann-Waldbrodt "Artistic projects and interventions"
p. 11	From the presentation of Dr. Pius Krütli, "Ten reflective steps for rendering research societally relevant"
p. 12	From the presentation of Dr. Pius Krütli, "Ten reflective steps for rendering research societally relevant"
p. 13	From the presentation of Dr. Markus Egermann "Introduction to Real World Labs"
p. 14	Source: Wiefek & Nagy (2023), based on Belcher et al. (2020) and Schäfer et al. (2021) From the presentation of Dr. Jasmin Wiefek, "Theory of Change"
p. 16	From the presentation of Prof. Dr. Dierk Bauknecht, "Regulatory Experiments"
p.20	Source: Own depiction based on Lawrence et al. 2022, Jahn et al. 2012, Bergmann et al. 2012 and Lang et al. 2012 (modified) From the presentation of Dr. Melanie Mbah, "Overview on innovative formats and methods of transdisciplinary research"
p. 22	Source: External
p. 24	Source: Stadt Emmendingen
p. 25	Source: Verena Quadl, Stadt Emmendingen