



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Bundesamt für Energie BFE  
Office fédéral de l'énergie OFEN  
Ufficio federale dell'energia UFE  
Uffizi federal d'energia UFE



# INTEGRATION FOR SWEET – MEETING III 2025



# AGENDA

---

13:00      **Welcome and Objectives**

---

13:05      **PART I – Conceptual input: What is integration? What are integration experts?**  
Practical headstand exercise plus questions

---

14:10      *Coffee Break*

---

14:30      **PART II – Empirical input: knowledge integration in 2 project cases**  
Integration strategies, best practices, core challenges plus questions

---

15:15      *Coffee Break*

---

15:30      **PART III – Coaching in small groups and plenary discussion**

---

16:25      **KTT and Integration Survey for SWEET Programme Evaluation**

---

16:45      **End**

---

# Making integration visible and encouraging it

**Dr. Sabine Hoffmann, Dr. Benjamin Hofmann, Hanna Salomon**

**SWEET Workshop, 3 November 2025**

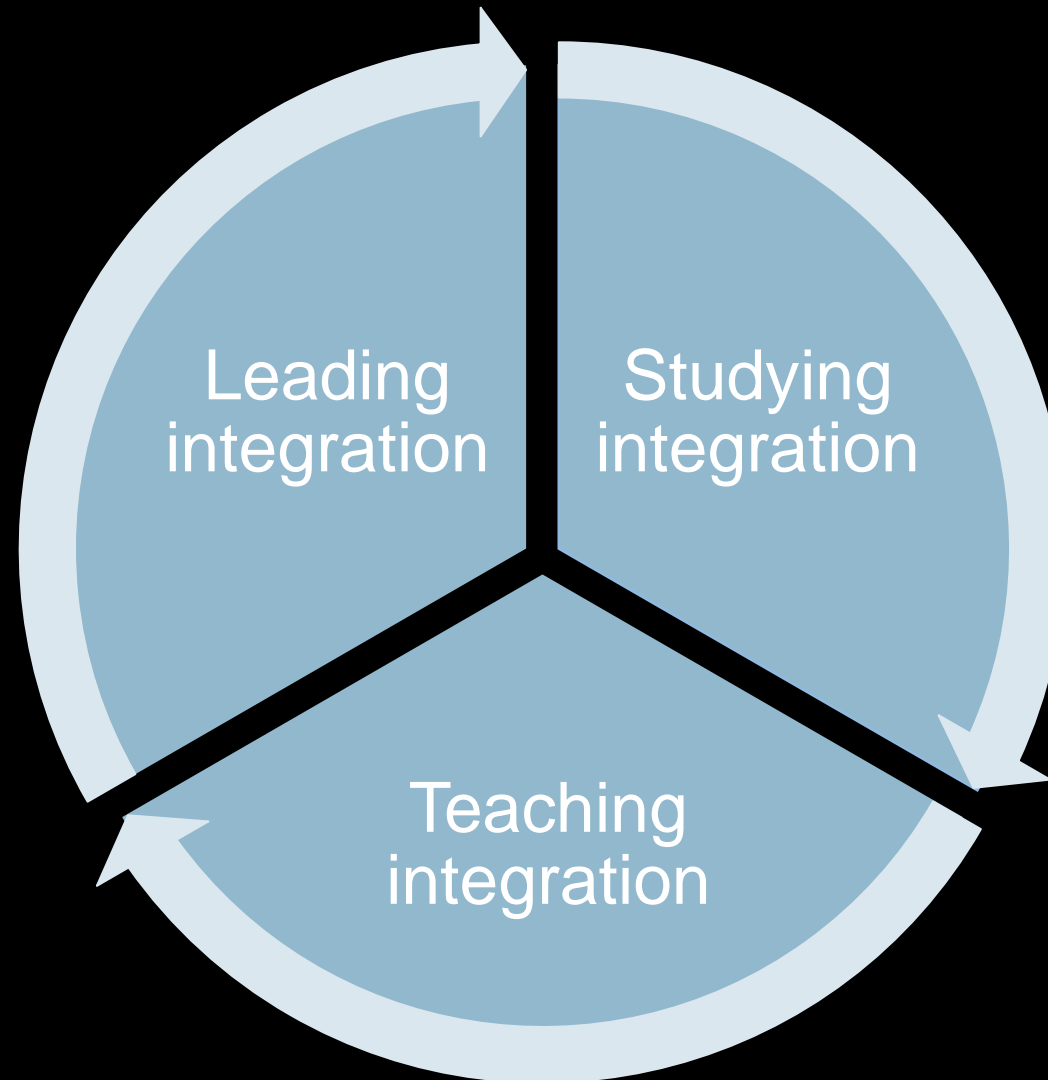
Science that matters

# Agenda

- Conceptual input about integration, Q&A
- Individual reflection: Roles of integration experts
- How to make integration fail
- **BREAK**
- Empirical inputs about knowledge integration in two project cases, Q&A
- **BREAK** & cartoons
- Coaching in small groups
- Plenary discussion
- Wrap up

# Conceptual Input about Integration

# Inter- and Transdisciplinary (ITD) Research Group



# Inter- and Transdisciplinary (ITD) Research Group



**Sabine Hoffmann**  
Group Leader Eawag



**Hanna Salomon**  
PhD Candidate



**Benjamin Hofmann**  
Group Leader TdLab ETHZ



**Jana Thierfelder**  
PostDoc



**Jialin Zhang**  
PostDoc



**Maryna Lakhno**  
PostDoc

# ITD Research Projects

**TRAPEGO**



TRAPEGO – Transformation in Pesticide Governance (SNSF, SINERGIA)

- Benjamin
- **Integration Expert**



TREBRIDGE – Transformation toward resilient ecosystems: Bridging natural + social sciences (SNSF, SINERGIA)

- Hanna
- **Integration Expert**



EXPLORE – Integration at the interface between science, policy and practice (ETH Board, BGB INITIATIVE)

- Jana
- **Accompanying Research**



INSIGHTS – Lessons learned for engaging at science-society interfaces (ETH Board, JOINT INITIATIVES)

- Maryna
- **Accompanying Research**

*Engage*

ENGAGE – Evidence-based dialogue on trade-offs in wicked societal problems funded by ETH Board (JOINT INITIATIVE)

- Jialin
- **Teaching + Learning Formats**



JURAPARK AARGAU – Real-World Lab for Sustainable Development funded by ETH Board (JOINT INITIATIVE)

- Sabine
- **Real-World Experiments**

# ITD Research

## Questions



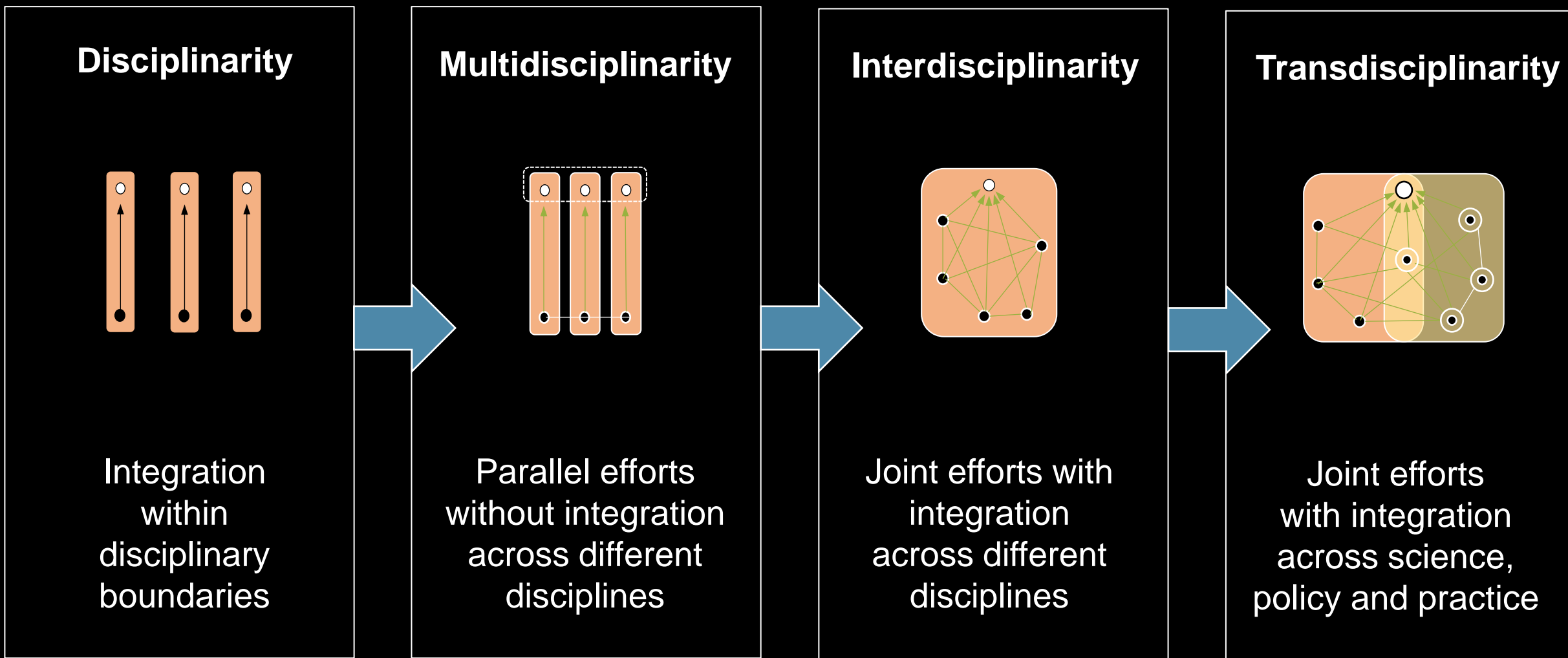
- What conditions foster or hinder integration in ITD research? How? Why?
- What challenges and opportunities do leaders and (early career) researchers experience? What strategies, methods, and tools do they employ? How can we support early career researchers in building their (academic) career?
- What roles do leaders and (early career) researcher play? What competencies do they need? What teaching and learning formats are suitable to develop such competencies?

## Methods



- Accompanying research
- Semi-structured interviews
- Participant observations
- Interactive workshops
- Focus groups

# How does transdisciplinarity differ from multi- and interdisciplinarity?



# What is integration?

## Integration is a process

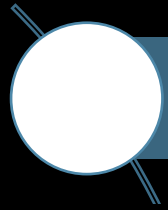
... of combining a wide range of perspectives from different disciplines (*i.e., interdisciplinary integration*), as well as from science, policy, and practice (*i.e., transdisciplinary integration*). It is **purposeful**: it is not an end in itself but a means to achieve a project's or program's specific purpose

## Integration is an output

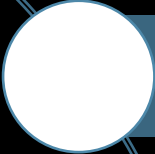
... that emerges from the integrative process (e.g. frameworks, concepts, methods, tools, or practices)

Hoffmann et al. (2017) Exploring transdisciplinary integration within a large research program, *Research Policy* 46 (3), pp. 678-692.

Pohl et al. (2021) Conceptualising transdisciplinary integration as a multidimensional interactive process, *Environ. Sci. Policy*, 118, pp. 18–26.



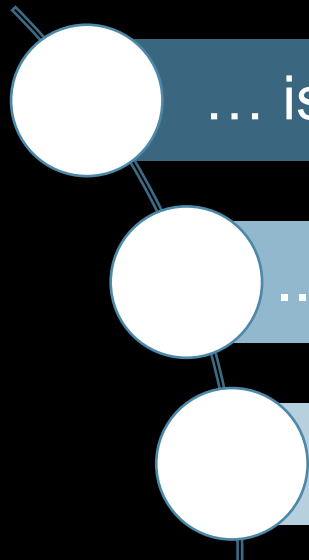
... is a process and an output



... is a process and an output



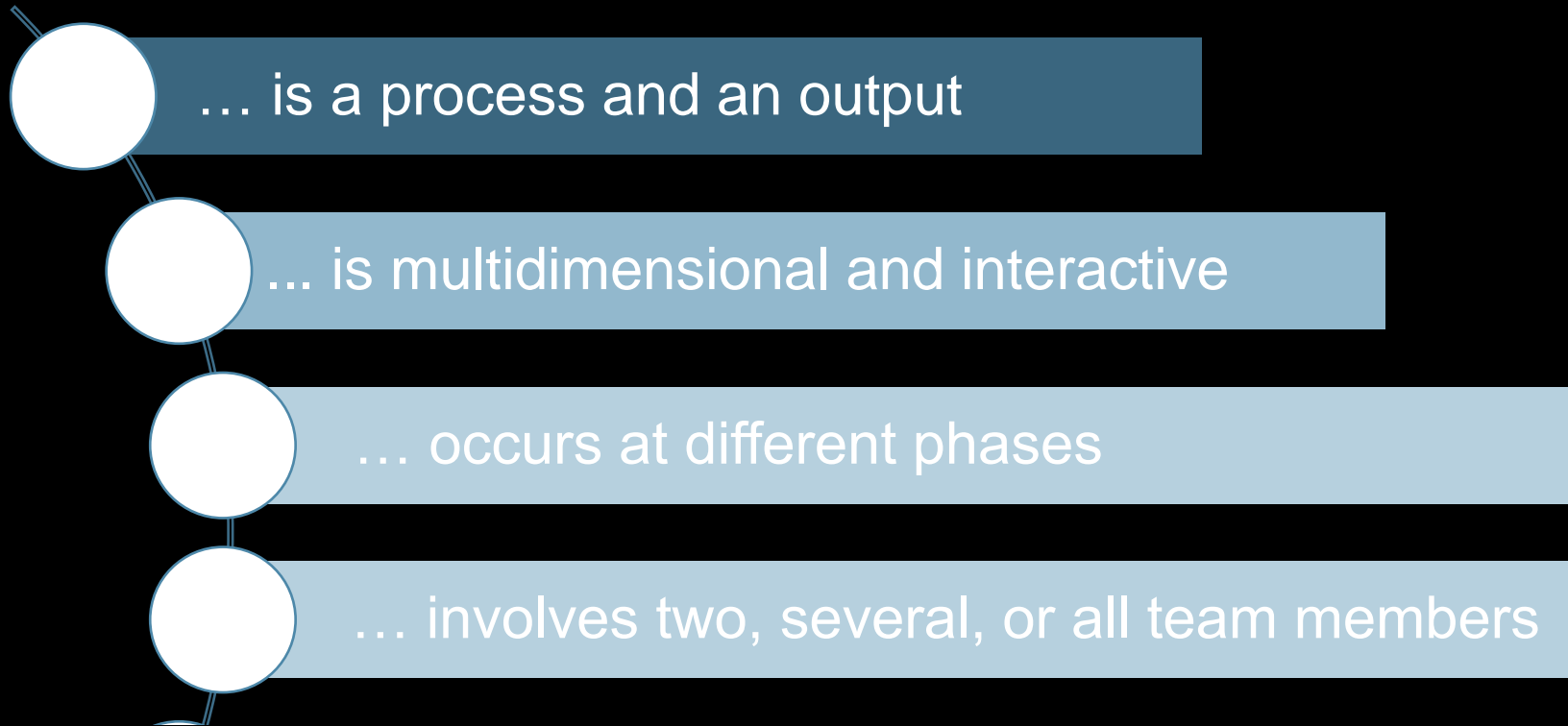
... is multidimensional and interactive

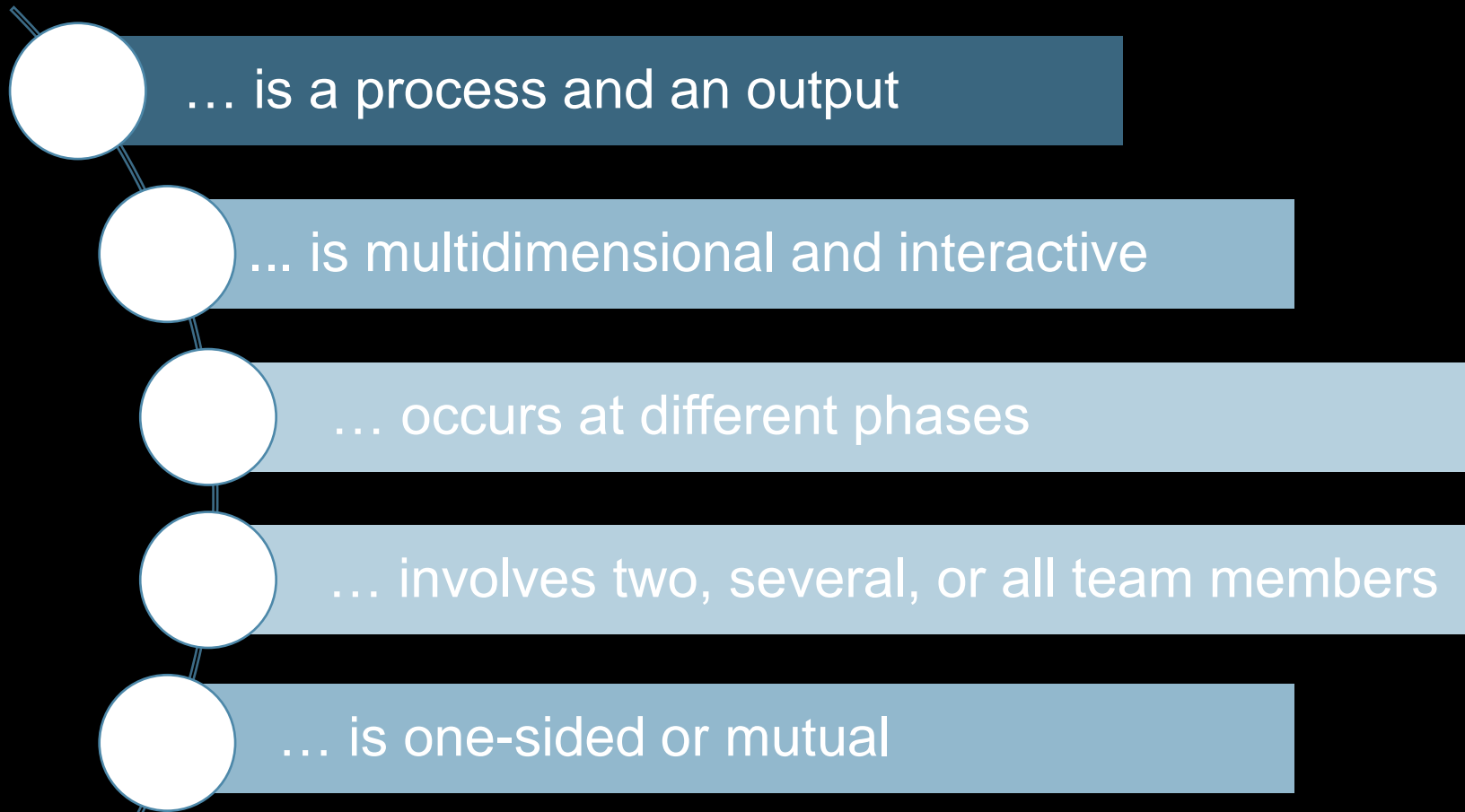


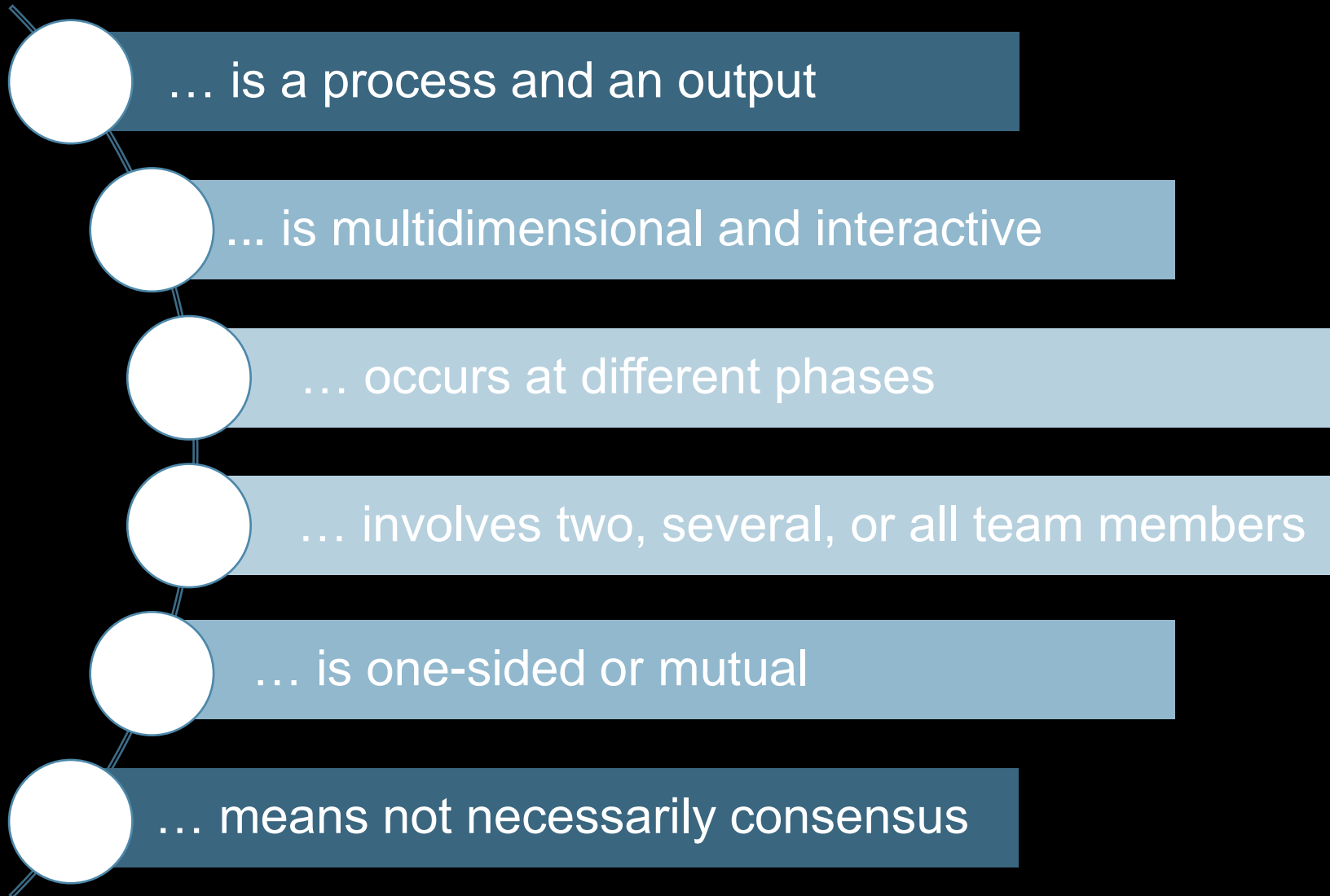
... is a process and an output

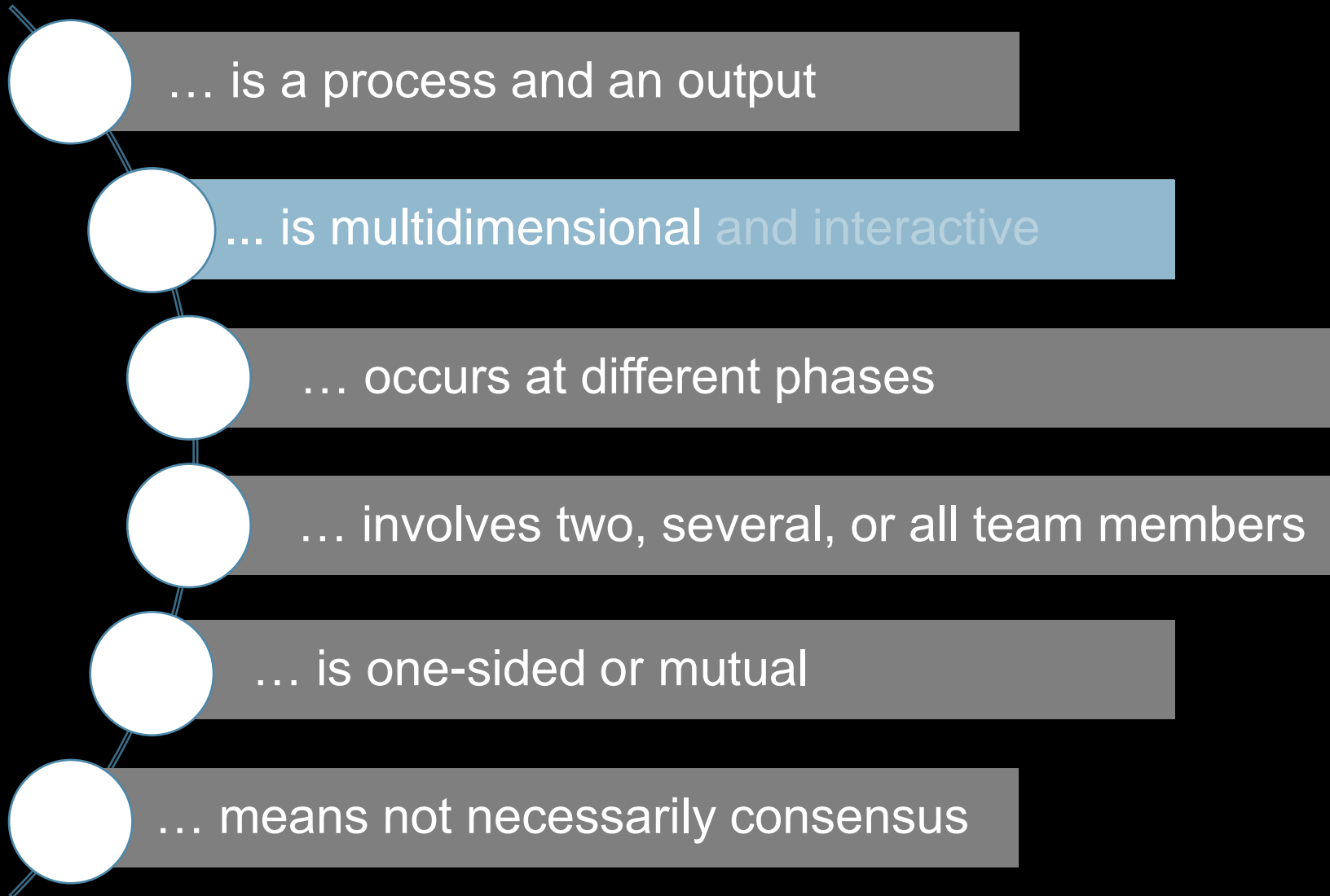
... is multidimensional and interactive

... occurs at different phases

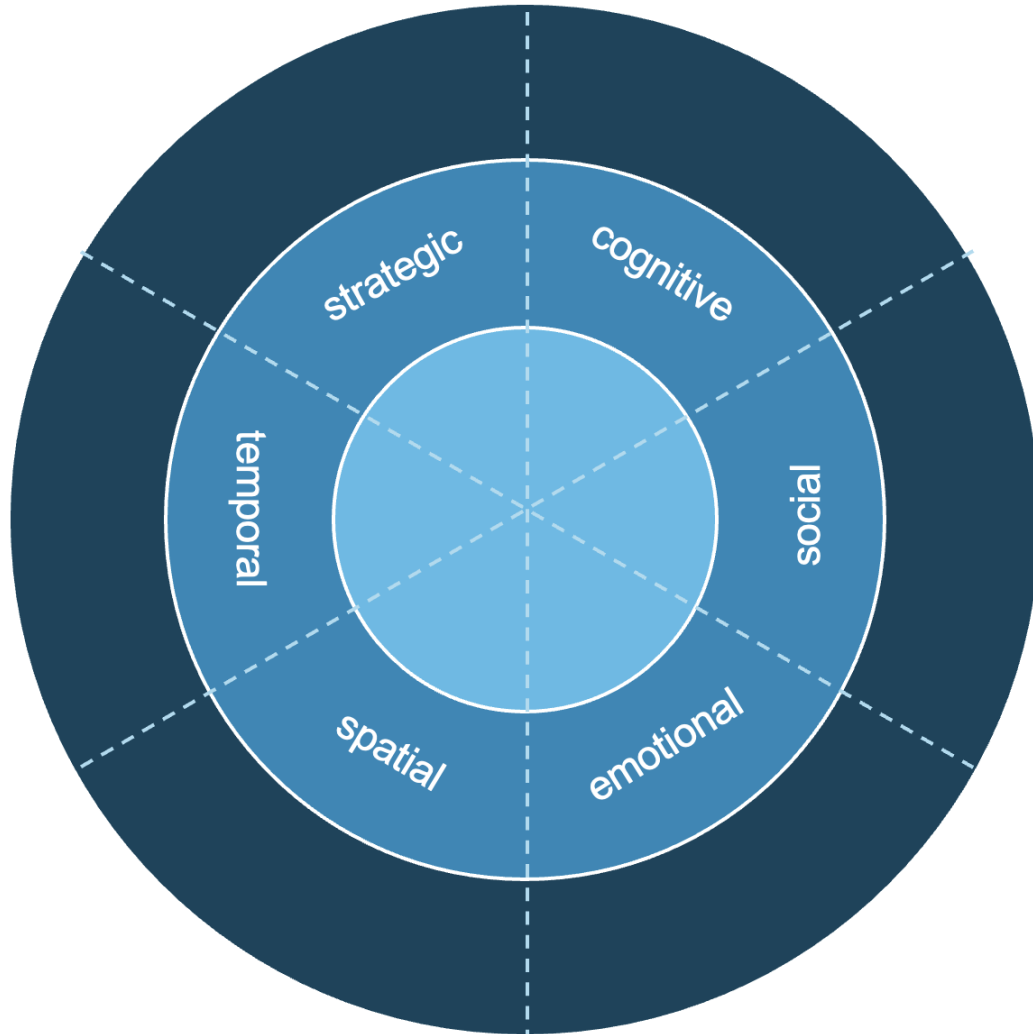








# Integration is multidimensional

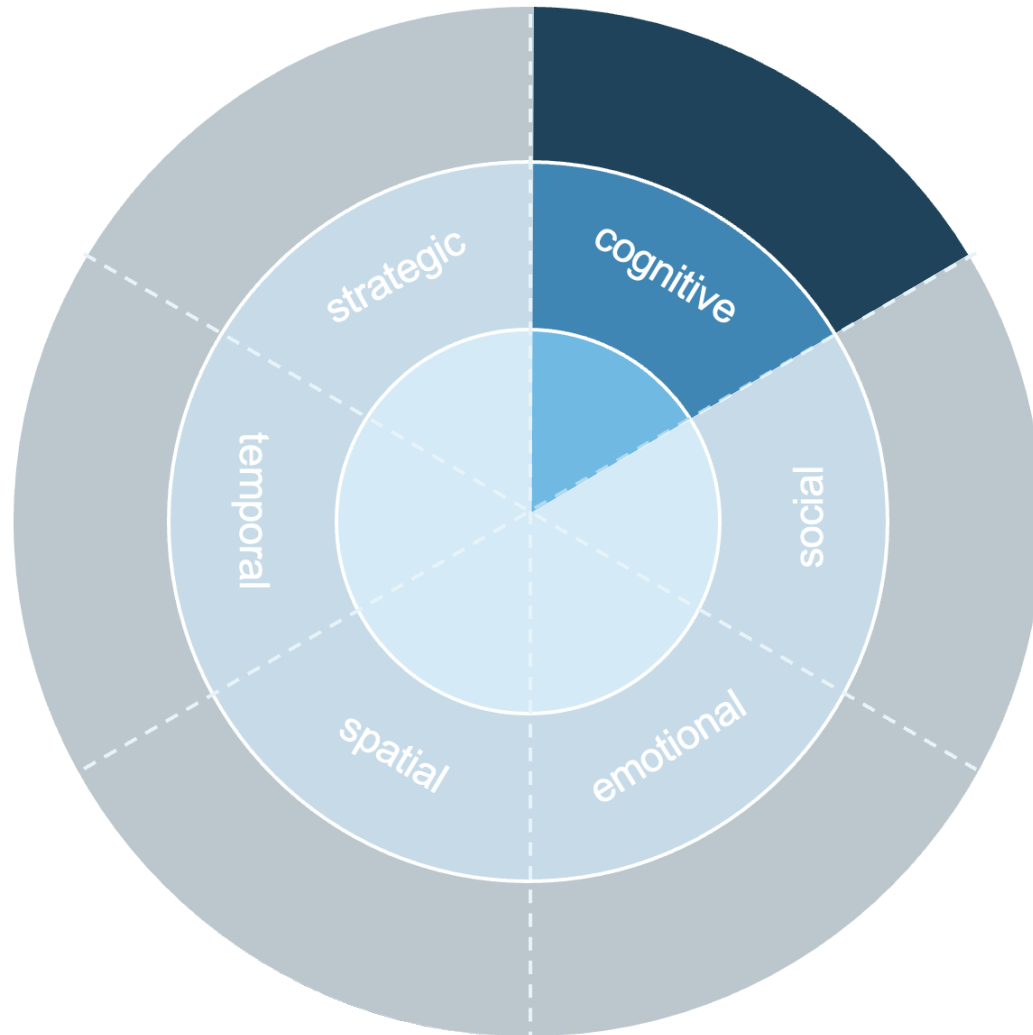


Freeth R, Caniglia G (2019) Learning to collaborate while collaborating: advancing interdisciplinary sustainability research. *Sustain Sci* 15 (1):247-261.

Pohl C., Klein J. T., Hoffmann S., Mitchell C., Fam D., (2021) Conceptualising transdisciplinary integration as a multidimensional interactive process, *Environ. Sci. Policy*, 118, pp. 18–26.

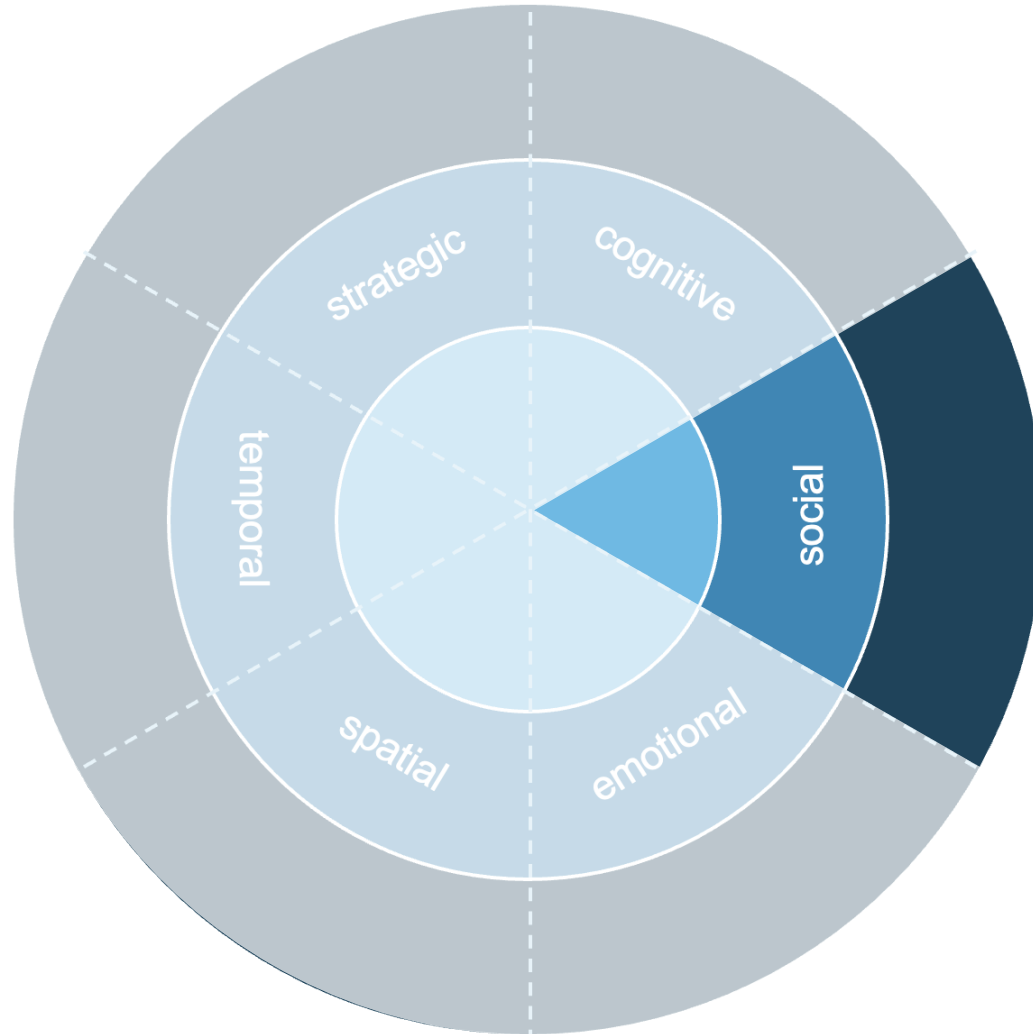
Dr. S. Hoffmann, Dr. B. Hofmann, H. Salomon, SWEET Workshop, 3 November 2025

# Integration is multidimensional...



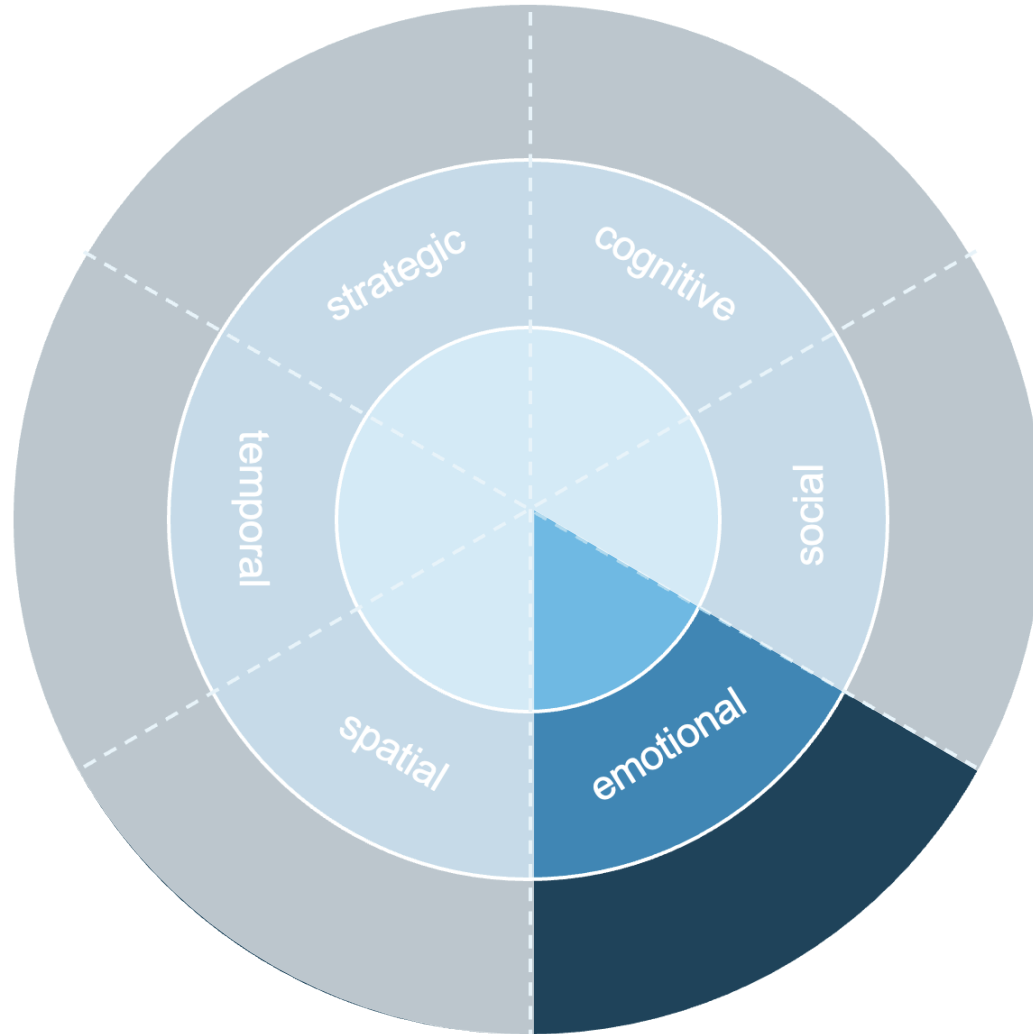
... understanding distinct perspectives from different disciplines and fields, combining perspectives and generating new knowledge by establishing previously unrecognised connections between them

# Integration is multidimensional...



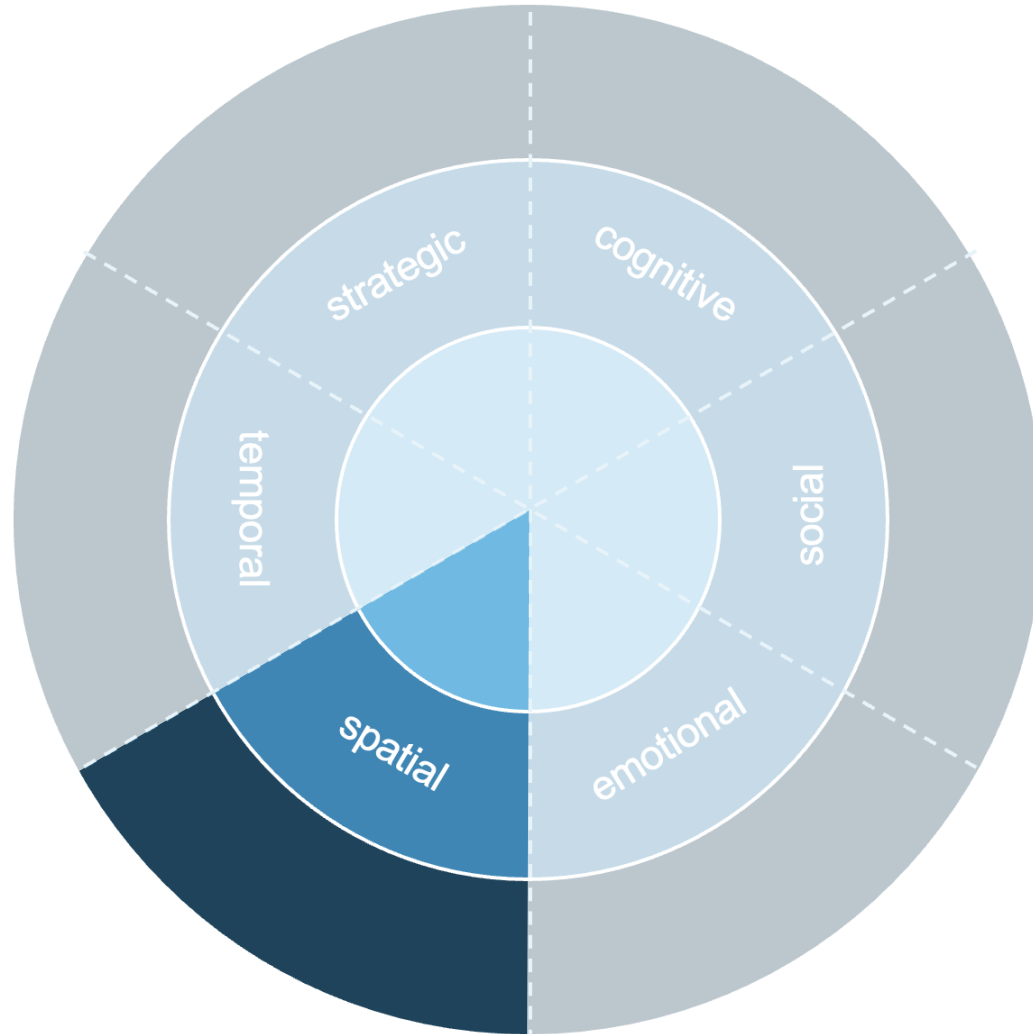
... recognising, appreciating, balancing and, where possible, reconciling, different interests, expectations and needs of involved team members, (sub)projects and organisations, and managing 'essential tensions', power imbalances and interpersonal conflicts

# Integration is multidimensional...



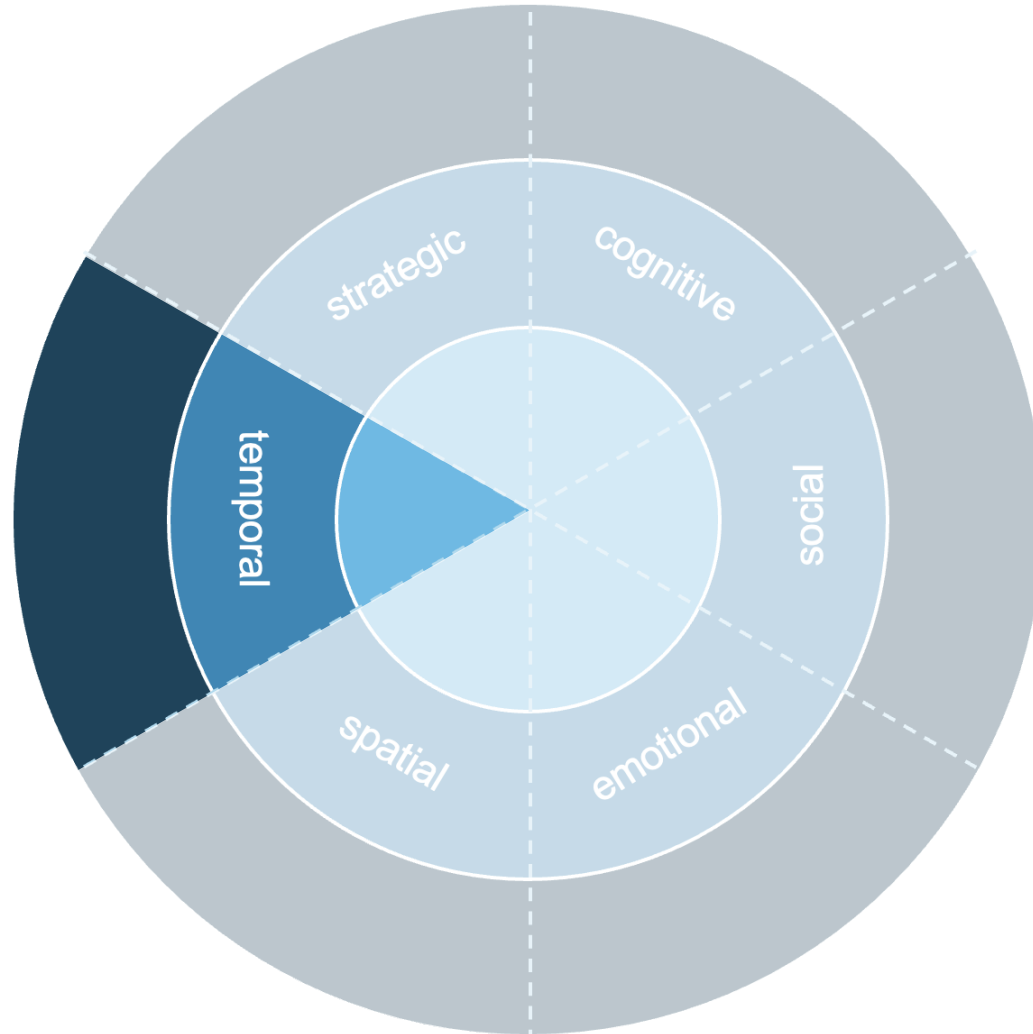
... building a climate of trust, respect, recognition and appreciation among team members; providing a safe space that enables team members to learn from each other and the challenges they face while engaging in integration

# Integration is multidimensional...



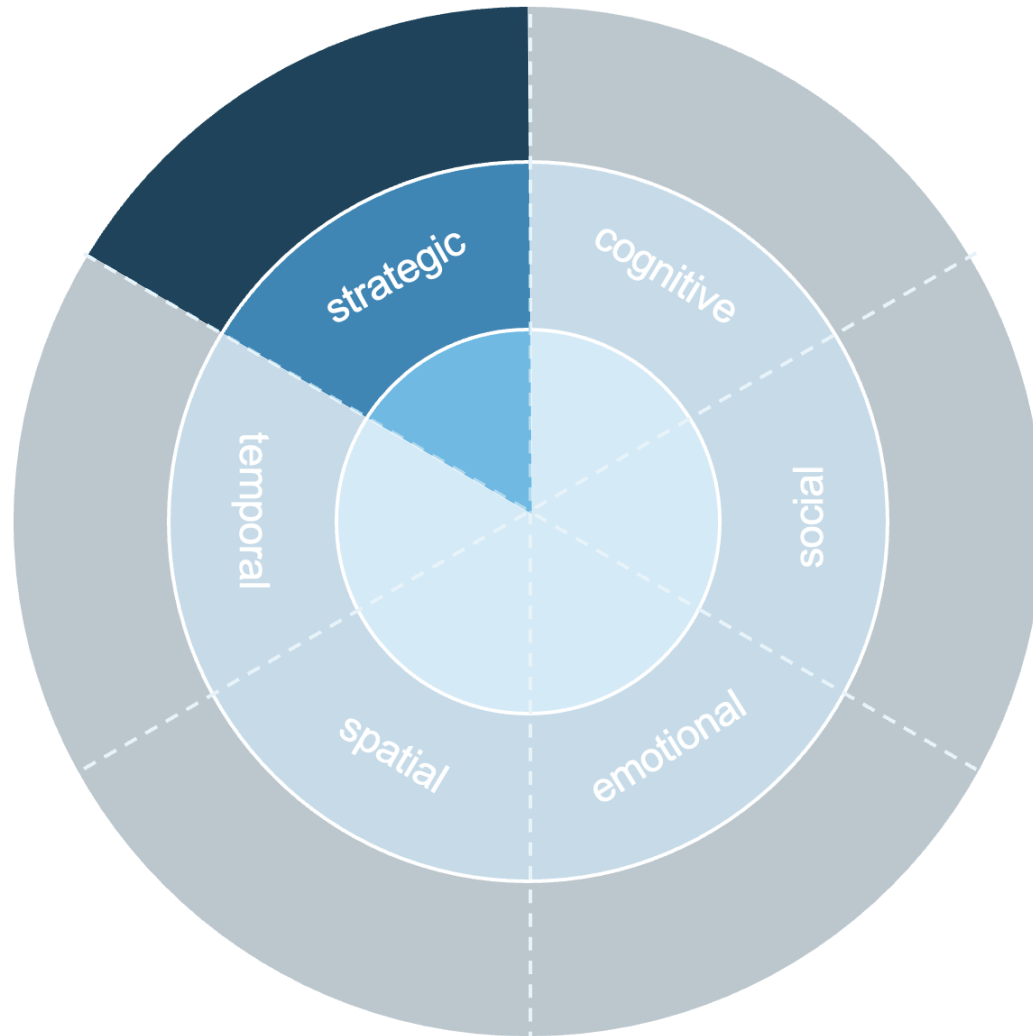
... combining data from different scales from local to regional, national and global; linking researchers, but also stakeholders from policy and practice from different places from local to regional, national and global

# Integration is multidimensional...



... connecting different time frames of projects, contracts and careers; linking different time frames of different disciplines, but also different time frames of policy and practice.

# Integration is multidimensional...



... establishing and maintaining the boundary conditions for integration, mobilizing necessary resources, and (sometimes) creating protected niches.

# ITD Research Projects

**TRAPEGO**



TRAPEGO – Transformation in Pesticide Governance (SNSF, SINERGIA)

- Benjamin
- **Integration Expert**



TREBRIDGE – Transformation toward resilient ecosystems: Bridging natural + social sciences (SNSF, SINERGIA)

- Hanna
- **Integration Expert**



EXPLORE – Integration at the interface between science, policy and practice (ETH Board, BGB INITIATIVE)

- Jana
- **Accompanying Research**



INSIGHTS – Lessons learned for engaging at science-society interfaces (ETH Board President)

- Maryna
- **Accompanying Research**

*Engage*

ENGAGE – Evidence-based dialogue on trade-offs in wicked societal problems funded by ETH Board (JOINT INITIATIVE)

- Jialin
- **Teaching + Learning Formats**



JURAPARK AARGAU – Real-World Lab for Sustainable Development funded by ETH Board (JOINT INITIATIVE)

- Sabine
- **Real-World Experiments**

# What are integration experts?

*“We're all bridging, translating, relating perspectives. We are generating new knowledge about the topic and the [integrative] process, (...) and coach people about the process. So, we generate new knowledge or help others to do it.”*

(ITD 2019 Workshop Participant)

---

Integration  
experts are...

**Integrative Leaders** (*i.e. set boundary conditions*)

---

---

Integration  
experts are...

**Integrative Leaders** (*i.e. set boundary conditions*)

---

**Bridge Builders** (*i.e. establish relations between people*)

---

---

Integration  
experts are...

---

**Integrative Leaders** (*i.e. set boundary conditions*)

---

**Bridge Builders** (*i.e. establish relations between people*)

---

**Boundary Crossers** (*i.e. cross social boundaries*)

---

---

Integration  
experts are...

---

**Integrative Leaders** *(i.e. set boundary conditions)*

---

**Bridge Builders** *(i.e. establish relations between people)*

---

**Boundary Crossers** *(i.e. cross social boundaries)*

---

**Translators** *(i.e. translate between perspectives)*

---

---

Integration  
experts are...

---

**Integrative Leaders** *(i.e. set boundary conditions)*

---

**Bridge Builders** *(i.e. establish relations between people)*

---

**Boundary Crossers** *(i.e. cross social boundaries)*

---

**Translators** *(i.e. translate between perspectives)*

---

**Catalysts** *(i.e. combine different perspectives)*

---

---

Integration  
experts are...

---

**Integrative Leaders** *(i.e. set boundary conditions)*

---

**Bridge Builders** *(i.e. establish relations between people)*

---

**Boundary Crossers** *(i.e. cross social boundaries)*

---

**Translators** *(i.e. translate between perspectives)*

---

**Catalysts** *(i.e. combine different perspectives)*

---

**Facilitators** *(i.e. facilitate integrative processes)*

---

Integration  
experts are...

**Integrative Leaders** *(i.e. set boundary conditions)*

**Bridge Builders** *(i.e. establish relations between people)*

**Boundary Crossers** *(i.e. cross social boundaries)*

**Translators** *(i.e. translate between perspectives)*

**Catalysts** *(i.e. combine different perspectives)*

**Facilitators** *(i.e. facilitate integrative processes)*

**Contributors** *(i.e. contribute intellectually to science)*

Integration  
experts are...

**Integrative Leaders** *(i.e. set boundary conditions)*

**Bridge Builders** *(i.e. establish relations between people)*

**Boundary Crossers** *(i.e. cross social boundaries)*

**Translators** *(i.e. translate between perspectives)*

**Catalysts** *(i.e. combine different perspectives)*

**Facilitators** *(i.e. facilitate integrative processes)*

**Contributors** *(i.e. contribute intellectually to science)*

**Mediators** *(i.e. mediate power imbalances and conflicts)*

Integration  
experts are...

**Integrative Leaders** *(i.e. set boundary conditions)*

**Bridge Builders** *(i.e. establish relations between people)*

**Boundary Crossers** *(i.e. cross social boundaries)*

**Translators** *(i.e. translate between perspectives)*

**Catalysts** *(i.e. combine different perspectives)*

**Facilitators** *(i.e. facilitate integrative processes)*

**Contributors** *(i.e. contribute intellectually to science)*

**Mediators** *(i.e. mediate power imbalances and conflicts)*

**Advisors** *(i.e. advise others on integrative processes)*

Integration  
experts are...

**Integrative Leaders** *(i.e. set boundary conditions)*

**Bridge Builders** *(i.e. establish relations between people)*

**Boundary Crossers** *(i.e. cross social boundaries)*

**Translators** *(i.e. translate between perspectives)*

**Catalysts** *(i.e. combine different perspectives)*

**Facilitators** *(i.e. facilitate integrative processes)*

**Contributors** *(i.e. contribute intellectually to science)*

**Mediators** *(i.e. mediate power imbalances and conflicts)*

**Advisors** *(i.e. advise others on integrative processes)*

**Evaluators** *(i.e. monitor and evaluate integrative processes)*

**Questions? Comments?**

# **Individual reflection: Roles of Integration Experts**

# Individual reflection: Roles of integration experts

- Which of the presented role(s) do you play in your consortium?  
Which roles resonate with you and why?
- Please stick the dots to the role(s) you already play and/or resonate most with you

Integration  
experts are...

**Integrative Leaders** *(i.e. set boundary conditions)*

**Bridge Builders** *(i.e. establish relations between people)*

**Boundary Crossers** *(i.e. cross social boundaries)*

**Translators** *(i.e. translate between perspectives)*

**Catalysts** *(i.e. combine different perspectives)*

**Facilitators** *(i.e. facilitate integrative processes)*

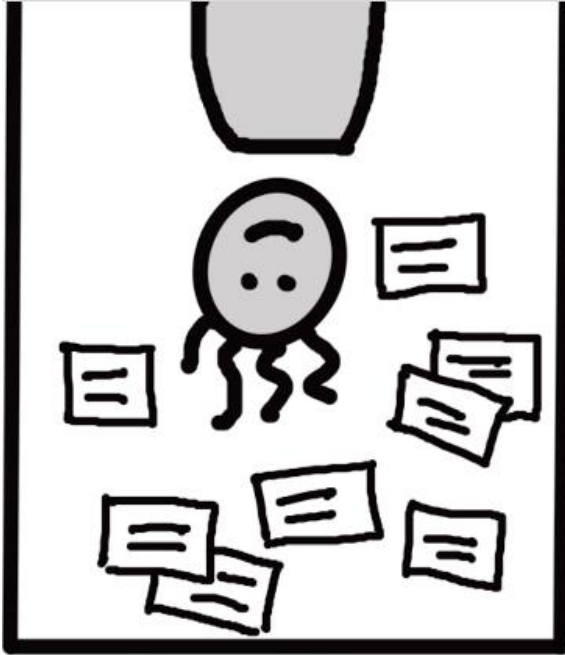
**Contributors** *(i.e. contribute intellectually to science)*

**Mediators** *(i.e. mediate power imbalances and conflicts)*

**Advisors** *(i.e. advise others on integrative processes)*

**Evaluators** *(i.e. monitor and evaluate integrative processes)*

# **Headstand Strategy: How to make integration fail**



## Headstand Strategy

How can you make sure that inter- and transdisciplinary integration fails in your project/program?

- 20' Group reflection
- 10' Plenary discussion

**Practice your acting skills!  
(Researchers)**

Pretend that you want to work in an ITD manner although you don't; join an ITD project only because of the money

**Never let the discussion end!  
(Researchers & Leaders)**

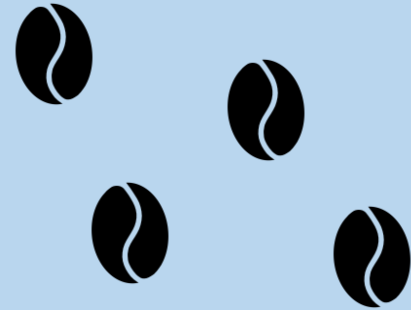
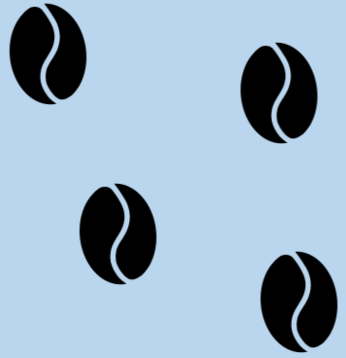
Keep questioning general setup and restart discussions on already taken decisions in the team; be a detail lover and insist discussing on minor issues

**Put disciplinarity first,  
inter- and transdisciplinarity second!  
(Leaders & Directors)**

Motivate your researchers to merely focus on their disciplinary careers; set goals as high as possible (e.g. only publications in *Nature*)



**15 MINUTE  
COFFEE BREAK**

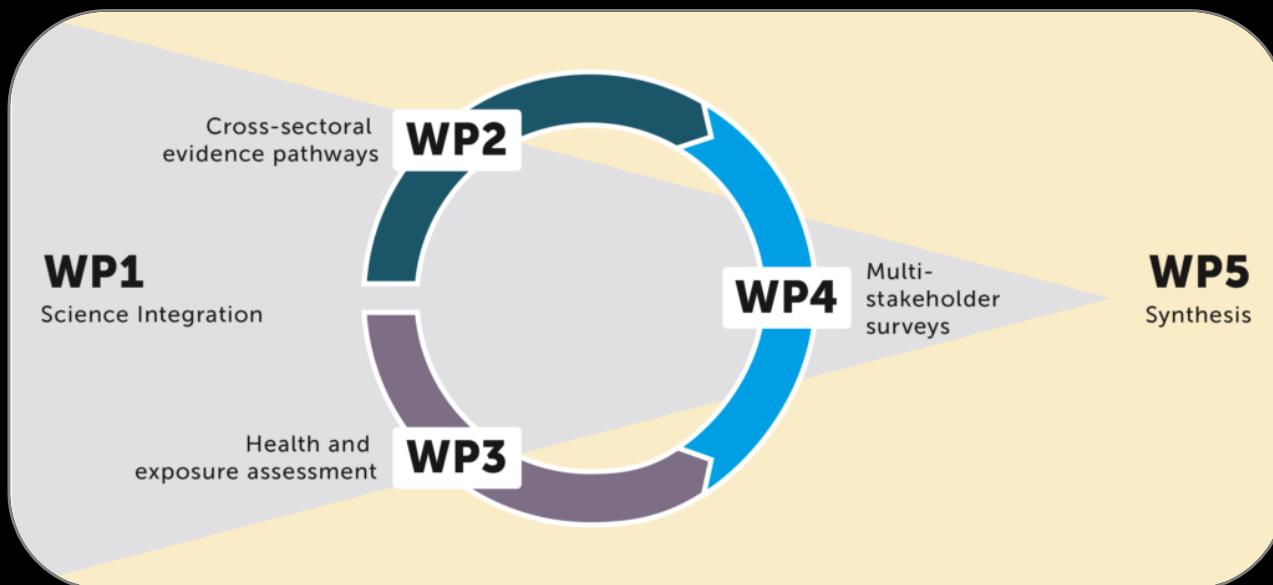


# Knowledge integration in two project cases

# TRAPEGO



“Evidence-based transformation in pesticide governance” (TRAPEGO)



## Advisory board

- Federal offices
- Cantonal administration
- Farmer associations
- Industry players
- Environmental interests

...



# TREBRIDGE

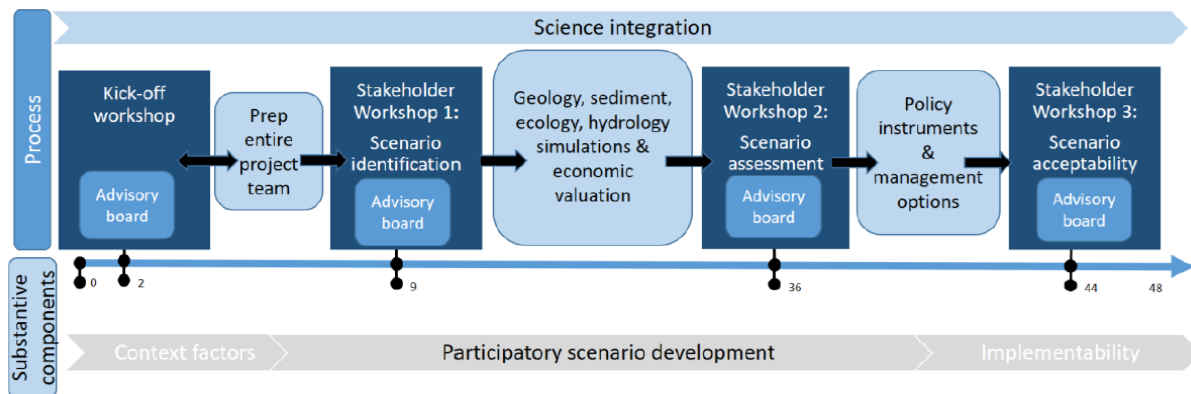


“Transformation toward resilient ecosystems:  
Bridging natural and social sciences”  
(TREBRIDGE)

**u<sup>b</sup> UNIVERSITÄT  
BERN**

**eawag**  
aquatic research

**ETH zürich**





## Advisory board

- Federal offices
- Cantonal administration
- NGOs
- Academic research institutes
- Practitioners
- ...



# Comparison of the two projects

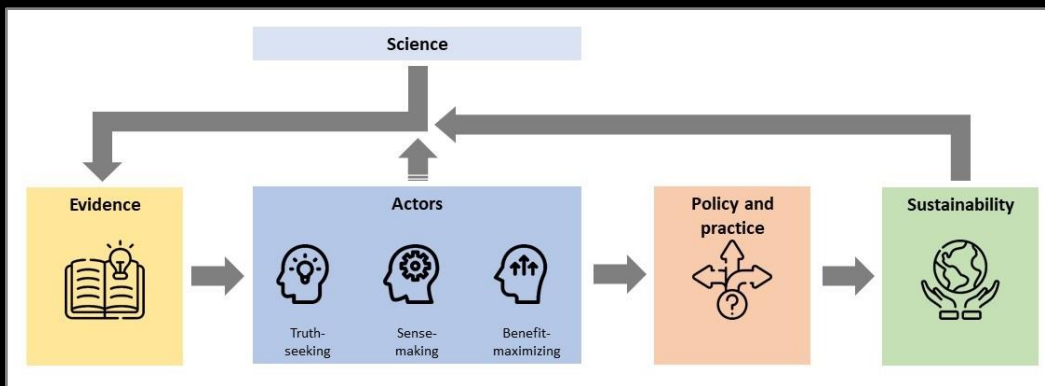
	TRAPEGO 	TREBRIDGE 
Empirical research focus	Agricultural pesticide use	Alpine watershed management
Geographic focus	Switzerland	Switzerland
Project duration	2021–2025	2022–2026
Budget	CHF 2.8 million	CHF 2.3 million
Funding source	Swiss National Science Foundation: Sinergia program	Swiss National Science Foundation: Sinergia program
Number of research institutes	5	4
Total number of researchers in project*	17	15
Thereof		
Seniors (professors, group leaders)	9	10
Juniors (postdocs, PhDs, scientific assistants)	8	5
Thereof		
Natural scientists (incl. public health researchers)	8	8
Social scientists	9	7
Disciplines or fields involved	Agronomy, agricultural economics, decision analysis, environmental sciences, political science, public health, and inter- and transdisciplinary studies	Environmental economics, forest ecology, geology, geomorphology, hydrology, natural resource policy, and inter- and transdisciplinary studies
Number of stakeholders in advisory board	16	12
Thereof		
Public administration (national)	4	3
Public administration (subnational)	2	6
Private sector	6	0
Research and civil society	4	3

Source: Hofmann, B., Salomon, H. & Hoffmann, S. Roles of researchers in inter- and transdisciplinary sustainability research: a reflection tool. *Sustainability Science*, 20, 777–792 (2025). [doi.org/10.1007/s11625-024-01619-x](https://doi.org/10.1007/s11625-024-01619-x)

# Comparison of knowledge integration: Glossary and conceptual framework



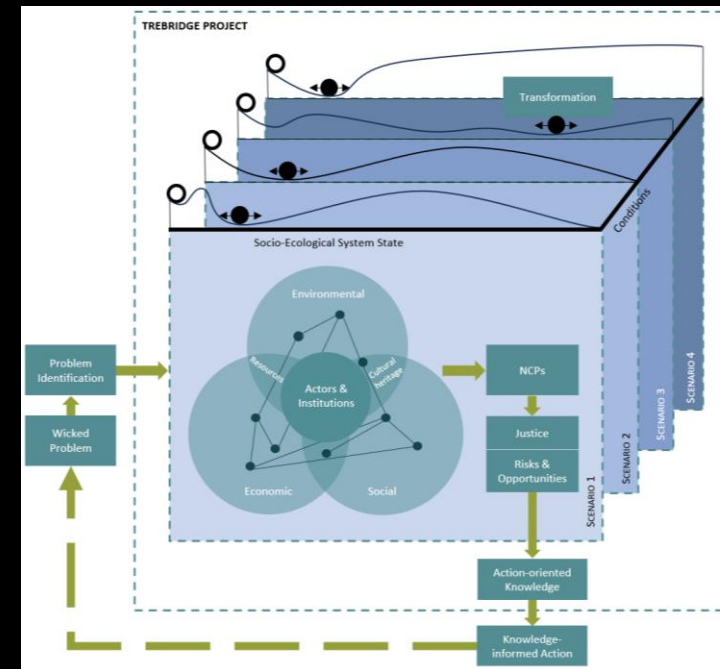
Joint conceptual framework / omit some terms



Simplified theoretical framework. Source: [Hofmann et al. 2023](#)



Joint conceptual framework / compromise



Conceptual framework. Source: [Zhang et al. 2025](#)

# Comparison of knowledge integration: Data collection

## TRAPEGO

- Joint interview question module
- No joint surveys



## TREBRIDGE

- Joint interviews
- No joint surveys
- Support in the field & joint excursions



**Questions? Comments?**

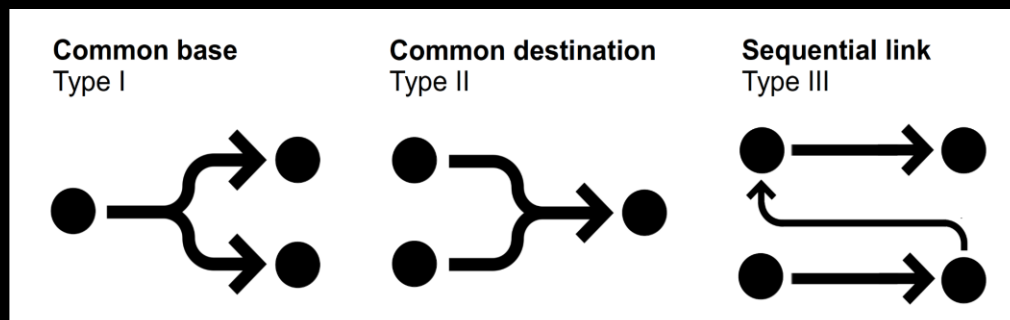
# Comparison of knowledge integration: Collaboration among early-career researchers



- Youngster meetings
- Joint paper on interdisciplinary collaborations



- Youngster meetings, youngster retreat
- Joint conferences

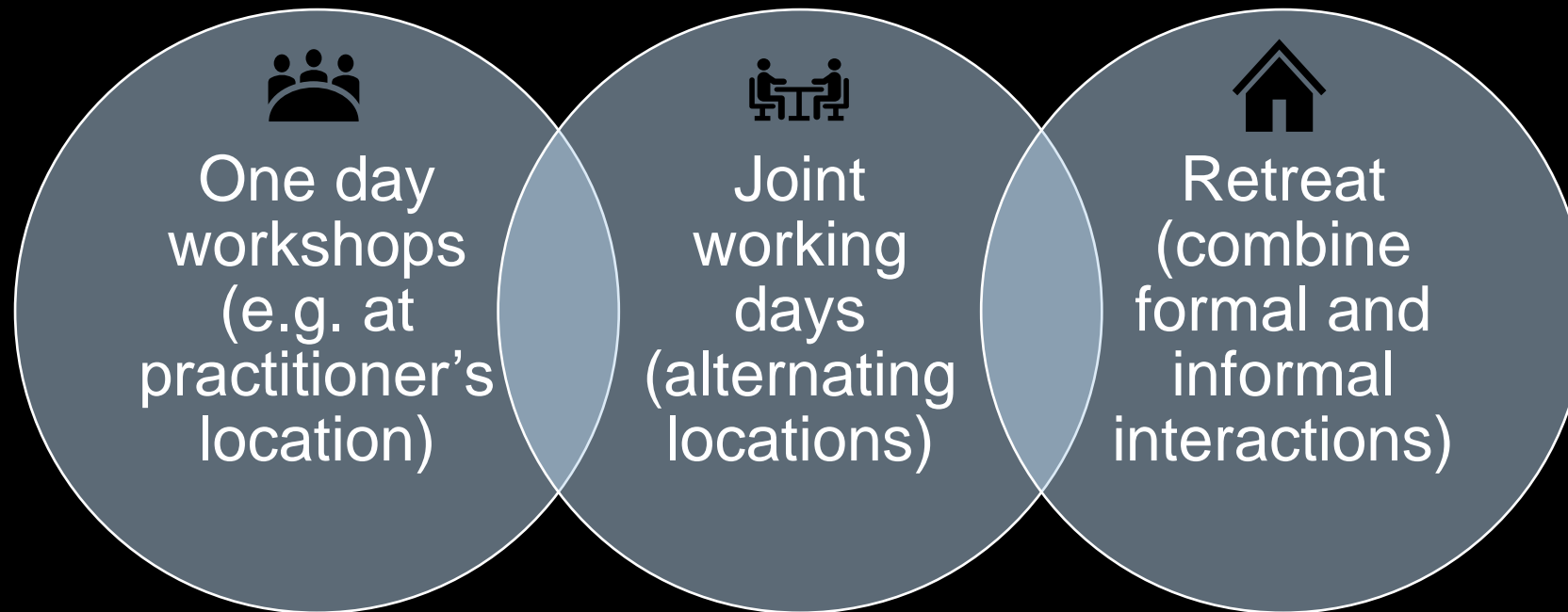


Source: Hofmann et al. A typology of interdisciplinary research collaborations to understand sustainability transformations: Insights from the agri-food sector. *Sustainability Science*, 1791–1808 (2025). <https://doi.org/10.1007/s11625-025-01702-x>



- Synthesis paper

# How to integrate young practitioners: ideas



**What are your experiences?**



# Advisory Board / Begleitgruppe

## TRAPEGO

- Initially conflict-laden setting (high political mobilization, focus on problems)
- Later more constructive setting (less public attention, focus on best practices)



## TREBRIDGE

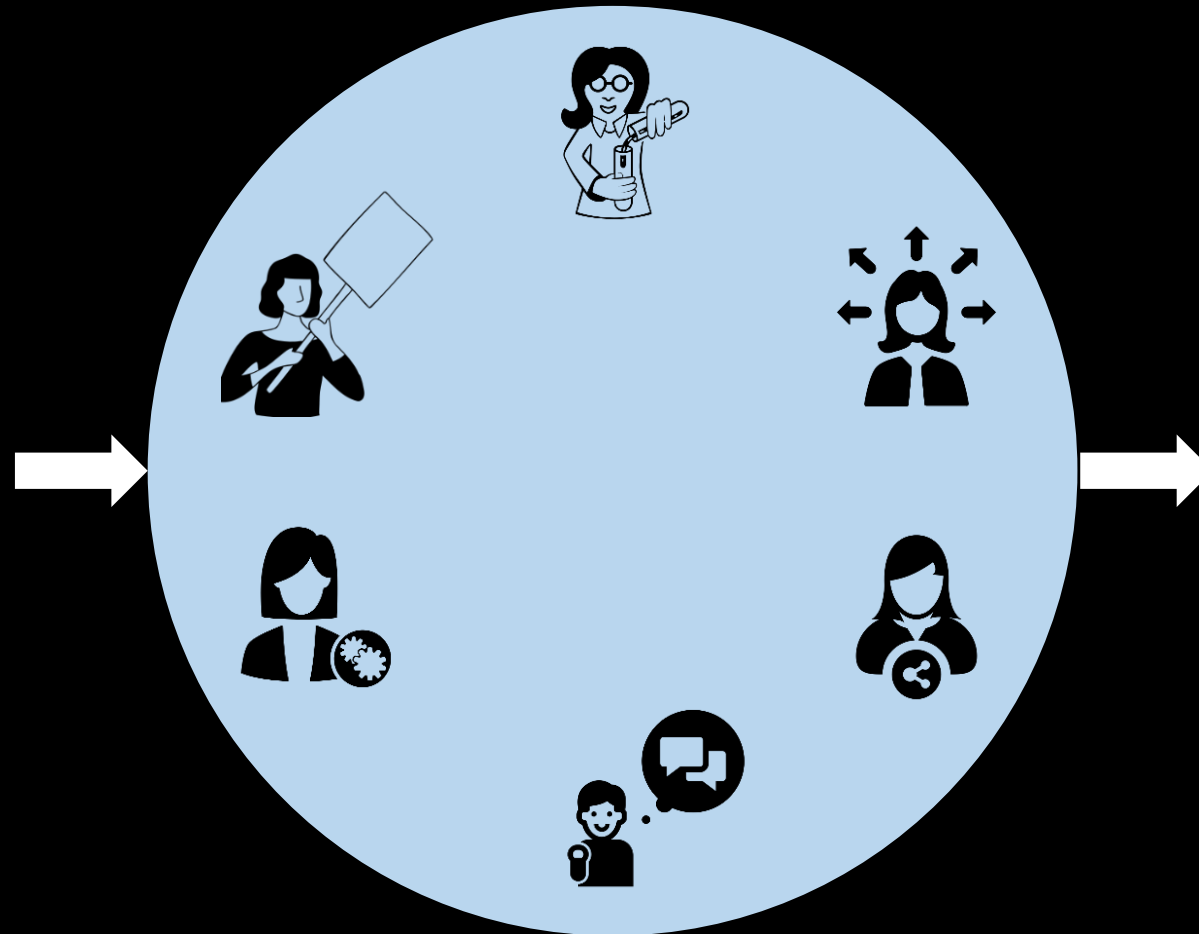
- Politically not very polarized (2022, 2024)
- Very constructive setting (high interest in our work, suggestions for outputs)



**Questions? Comments?**

# Roles in project teams

ITD research contexts  
require different roles of  
researchers (some are new)



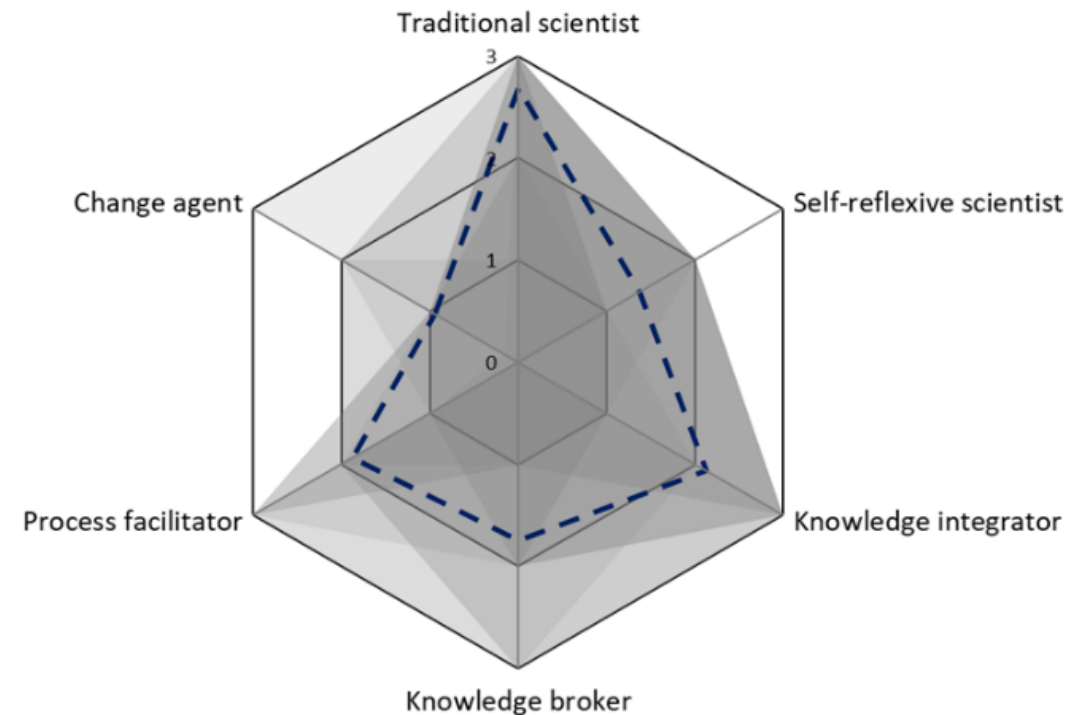
## Reflection tool

- Make expectations transparent
- Manage expectations
- Address/prevent challenges and conflicts
- Check overarching project goal alignment

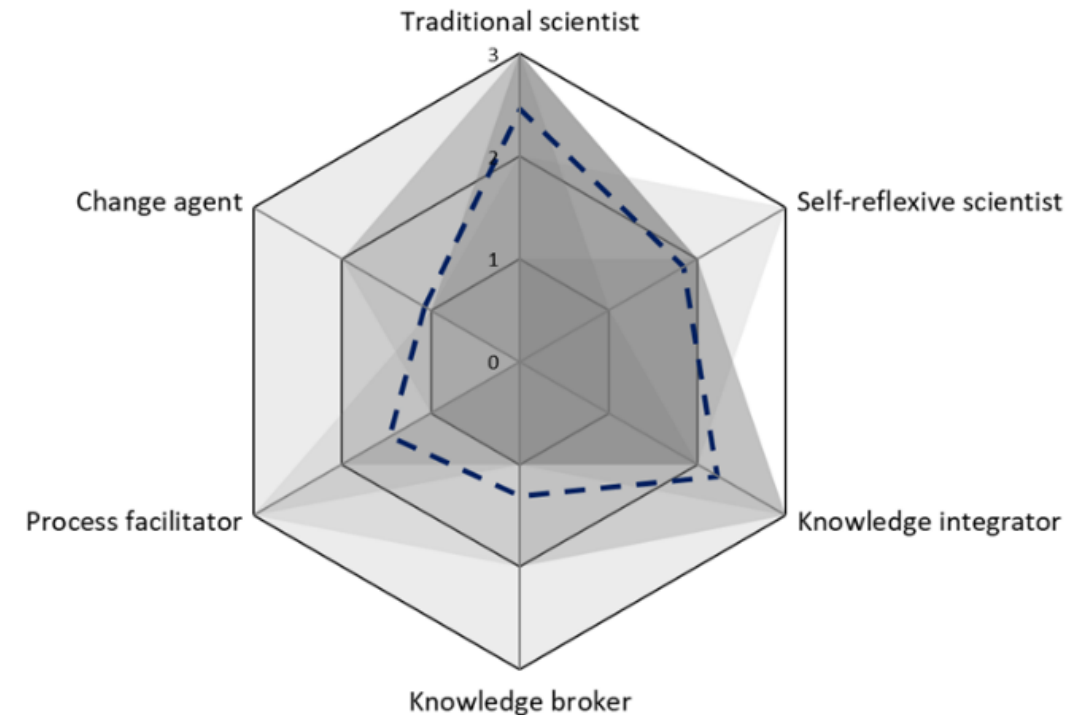
Source: Hofmann, B., Salomon, H. & Hoffmann, S. Roles of researchers in inter- and transdisciplinary sustainability research: a reflection tool. *Sustainability Science*, 20, 777–792 (2025). [doi.org/10.1007/s11625-024-01619-x](https://doi.org/10.1007/s11625-024-01619-x)

# Application of role reflection tool

## TRAPEGO



## TREBRIDGE



Source: Hofmann, B., Salomon, H. & Hoffmann, S. Roles of researchers in inter- and transdisciplinary sustainability research: a reflection tool. *Sustainability Science*, 20, 777–792 (2025). [doi.org/10.1007/s11625-024-01619-x](https://doi.org/10.1007/s11625-024-01619-x)

# Further resources: role reflection tool

Role survey and workshop outline available in **supplementary material**

SPRINGER NATURE Link

Find a journal Publish with us Track your research Search

Home > Sustainability Science > Article

## Roles of researchers in inter- and transdisciplinary sustainability research: a reflection tool

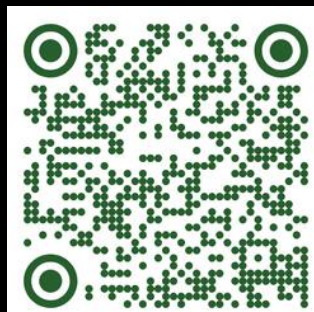
Original Article | Open access | Published: 17 February 2025  
Volume 20, pages 777–792, (2025) Cite this article

[Download PDF](#) You have full access to this open access article

Benjamin Hofmann Hanna Salomon & Sabine Hoffmann

[Sustainability Science](#)  
[Aims and scope](#) →  
[Submit manuscript](#) →

[Use our pre-submission checklist](#) →  
Avoid common mistakes on your manuscript



[Link](#)

Easy-to-read **summary of the tool**

## Integration and Implementation Insights

A community blog and repository of resources for improving research impact on complex real-world problems

Home About All posts Primers Index Authors Contributing to i2Insights i2S Contact

# What roles do you play in inter- and transdisciplinary projects?

April 1, 2025

By Hanna Salomon, Benjamin Hofmann and Sabine Hoffmann.

i2INSIGHTS AND i2S  
Integration and Implementation (i2S) provides the foundation

Search ...



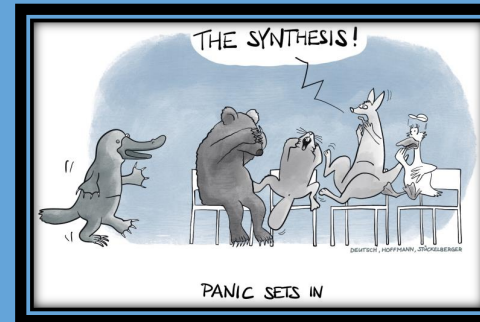
[Link](#)

**Questions? Comments?**

# What to do during the break

## Cartoons





# 15 MINUTE COFFEE BREAK

**Form small groups (4 and 5 people):**

**Is there a cartoon that you are most interested in?**

**What is on your mind?**

**What would you like to discuss?**

# Coaching in Small Groups

# Plenary Discussion

# Wrap Up

# Wrap up

Integration is a  
multi-dimensional  
process and  
outcome

Best practices to  
support integration  
are available

Integration experts  
should lead, but  
need goodwill and  
commitment

# Take home message – Scenario 1: You are a designated integration expert in a consortium applying for SWEETER

Develop a dedicated WP on integration and link it to synthesis

Plan formats for integration (e.g., retreats/workshops, youngster meetings)

Start integration process and get commitment from all consortium partners to support it in the future

Plan for boundary objects that support integration (e.g., conceptual framework, joint data collection)

Specify which contributions are needed by whom and when (e.g., in a consortium figure or give-and-take matrix)

## Take home message – Scenario 2: You are an integration expert in a funded consortium and want to implement your integration concept

Lead concrete integrated outputs (e.g., a policy output that the entire consortium contributes to)

Combine different integration procedures (e.g., common group learning, subgroups, bilateral discussions)

Foster exchanges within the consortium, help others to recognize potentials for integration and identify potential leaders for integrated outputs

Regularly reflect on (un)expected integration challenges with coordinators, colleagues and other integration experts and address such challenges in a timely manner

Adapt integration concept to new developments and exploit upcoming opportunities (e.g., for a practice output)

# Follow up questions?



ITD Research  
Group at Eawag



TdLab,  
ETH Zurich



sabine.hoffmann  
@eawag.ch



benjamin.hofmann  
@usys.ethz.ch



hanna.salomon  
@eawag.ch