

TRANSDISCIPLINARITY in assessing technologies for sustainability – Moving beyond wishful thinking

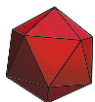
Univ.-Prof. Dr. Ulrike Felt

Department of Science and Technology Studies

Research Plattform Responsible Research and Innovation in Academic Practice

University of Vienna

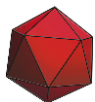
39th Conference of Rectors and Presidents of European
Universities of Technology, September 17-18, 2021



Many promises ... tackling climate and environment-related challenges

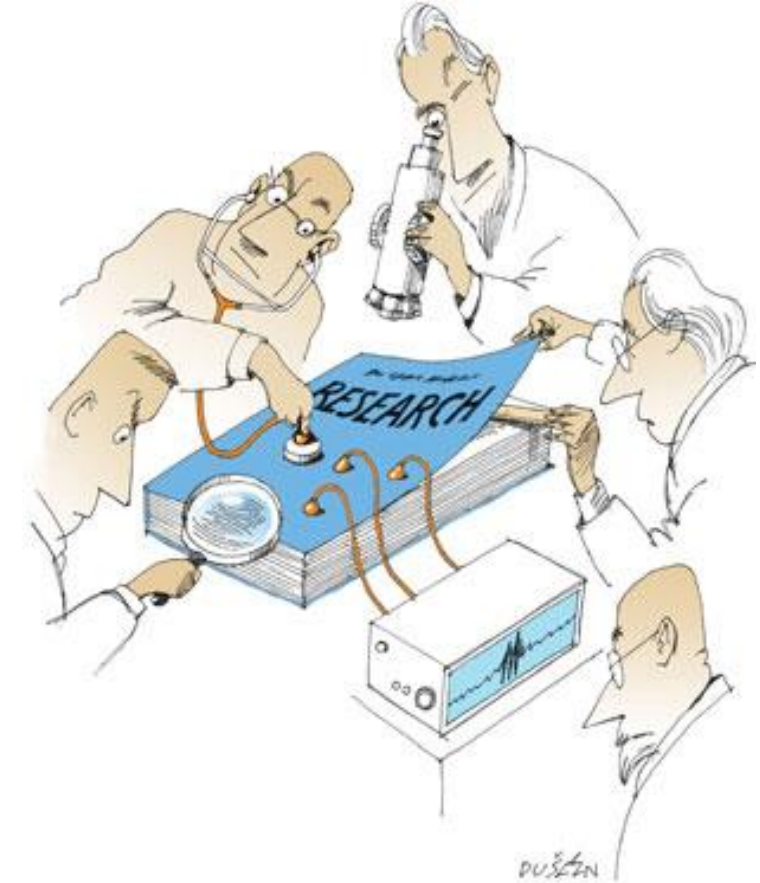
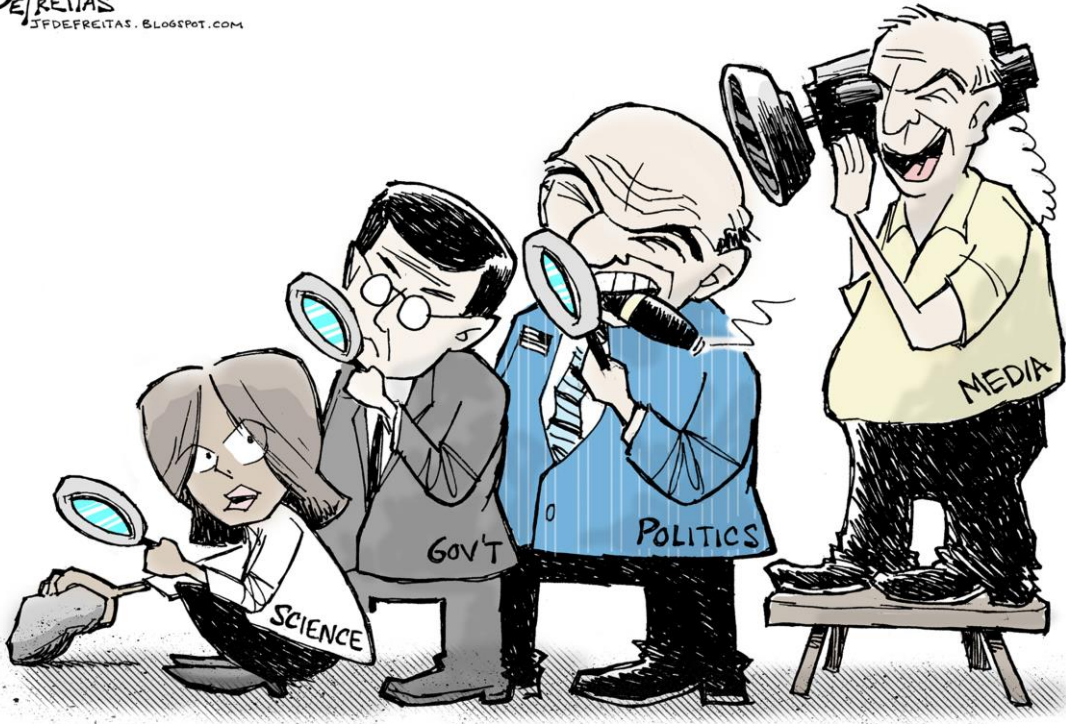
Global challenges that we are facing around issues of sustainability and climate change calls urgently for new ways of addressing them locally both in research, through policy but also through engagement on the societal level

- What role will universities as knowledge producing institutions but also as agenda setting actors play?
- What new approaches will it need when it comes to
 - ✓ educating the next generations of researchers-citizens,
 - ✓ fostering and organizing research, but also
 - ✓ providing and protecting the spaces researchers need to engage with these challenges.

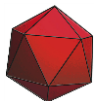


High expectation and (societal) scrutiny?

DeFRETAS
JFDEFRETAS.BLOGSPOT.COM



- there is no place in modern societies from which science is wholly absent => high expectations and close scrutiny



What kind of society (socio-political environment) are we living in?

Two intersecting perspectives

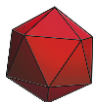
Innovation society

„the new“ and discourses on emerging science and technologies are at the core how we imagine future developments

(Self)Experimental society

A willingness to remain open to and even embrace new forms of experience is expected from all members of society

How does this shape contemporary (academic) research cultures?



Changing Knowledge Production

Increasing debate on science – society relations

Science after the 'New Public Management' turn

- Efficiency
- Accountability
- Temporalisation
- changing (e)valuation schemes
- Opening up towards economic system

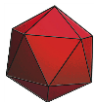
Vision of "traditional" Science

- Disciplined
- Inwards oriented logic & reward system
- 'Freedom of research'

Transdisciplinary Knowledge Regime

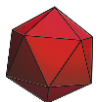
- real-world problem/solution orientation
- participation of societal actors
- anticipatory, responsive, inclusive
- response-ability vs accountability

socio-political
environment

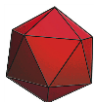


Sustainability – Transdisciplinarity as a response to “wicked problems”

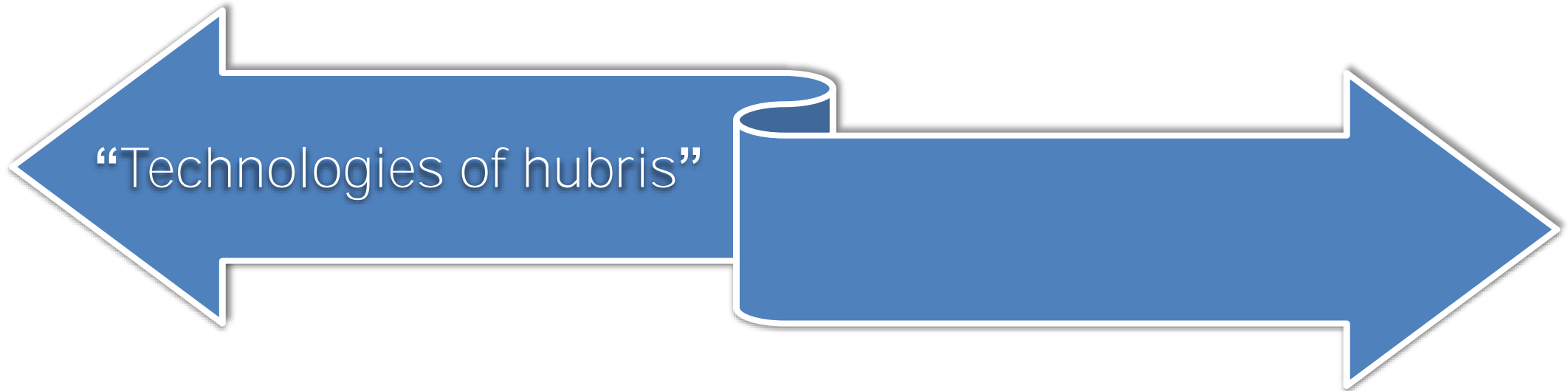
- Confronting „wicked problems“: they are complex in nature (involving many interdependent factors), in flux, often have large-scale impacts, involve multiple sets of entrenched interests, and are prone with interconnected sets of risks and uncertainties
- Sustainability related problems are wicked problems *par excellence*
- *Transdisciplinarity and approaches of Responsible Innovation seem to be an excellent way to address them* (Wickson & Carew, 2014)
 - focusing on complex and multidimensional real-world problems;
 - transcending academic boundaries to incorporate collaboration and mutual learning between a range of researchers and relevant stakeholders; and
 - iteratively evolving methodological approaches that reflect the problem and its context from a range of perspectives and develops responses accordingly.



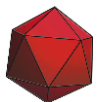
How to assess the potential of technologies for sustainability?



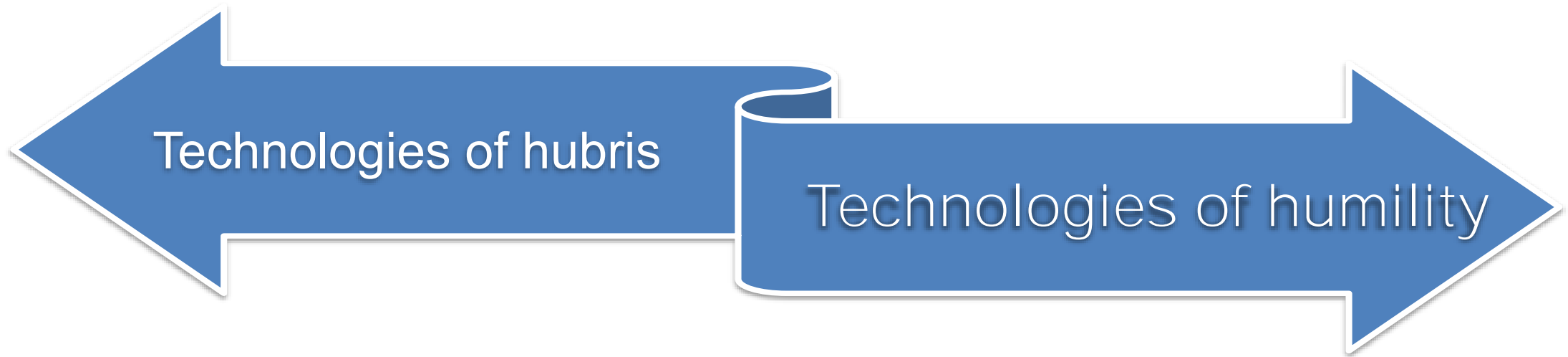
Complement „technologies of hubris“



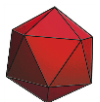
“To reassure the public, and to keep the wheels of science and industry turning, governments have developed a series of predictive methods (e.g., risk assessment, cost-benefit analysis, climate modelling) that are designed, on the whole, to facilitate management and control, **even in areas of high uncertainty.**“
(Jasanoff 2003)



... with technologies of humility

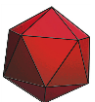


“... methods, or better yet institutionalized habits of thought, that try to come to grips with (...) **the unknown, the uncertain, the ambiguous, and the uncontrollable**. Acknowledging the limits of prediction and control, (...). They **call for different expert capabilities** (...).” (Jasanoff 2003)



What does this mean in practice

- Give attention to
 - **Framing** – asking what is the problem? For what purpose do we develop a solution? => defective problem definitions also produce problematic solutions => key for wicked problems is the inclusion of diverse actors in the problem definition
 - Attentiveness to **vulnerabilities** – who could potentially be hurt? Produce more inclusive assessments
 - How are benefits and risks distributed – how **just and inclusive** are solutions? Scrutinize the tools we use to make assessments (e.g., classical ethics assessments often do not cover the whole range of social and economic that matter differently to different people)
 - How can we know better, i.e. how do we **learn across the different knowledge environments**; this is often limited by the way institutions (incl. universities) frame what a “good” problem to address is and how it should be tackled



Bringing transdisciplinarity to the university

- while the list of co-authors on a publication or on project proposals might imply interdisciplinary collaboration, “no knowledge integration occurs”, and researchers actually simply “end up working on their individual and monodisciplinary research separately (Dai, 2020).”
- no successful transdisciplinarity without *epistemic living spaces* for the people – the researchers – to actually do so

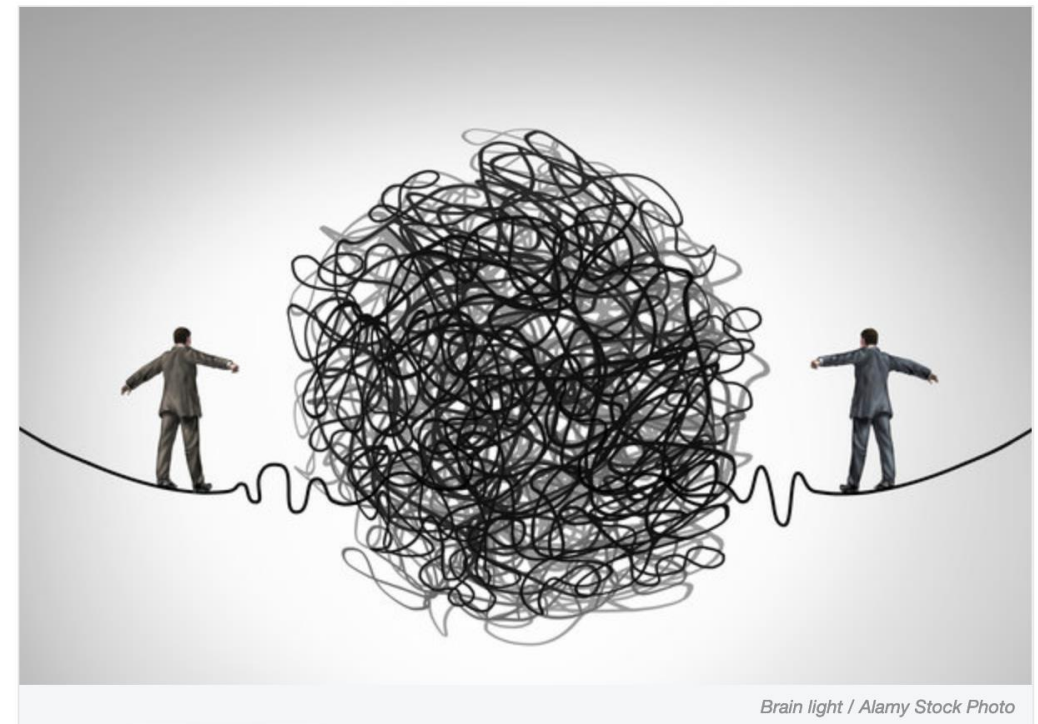
<https://www.natureindex.com/news-blog/what-are-fake-interdisciplinary-collaborations-and-why-do-they-occur#.XmNoJEurTX8.mailto>

What are fake interdisciplinary collaborations and why do they occur?

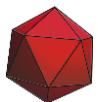
It's not always intentional.

4 February 2020

Lianghao Dai

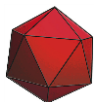
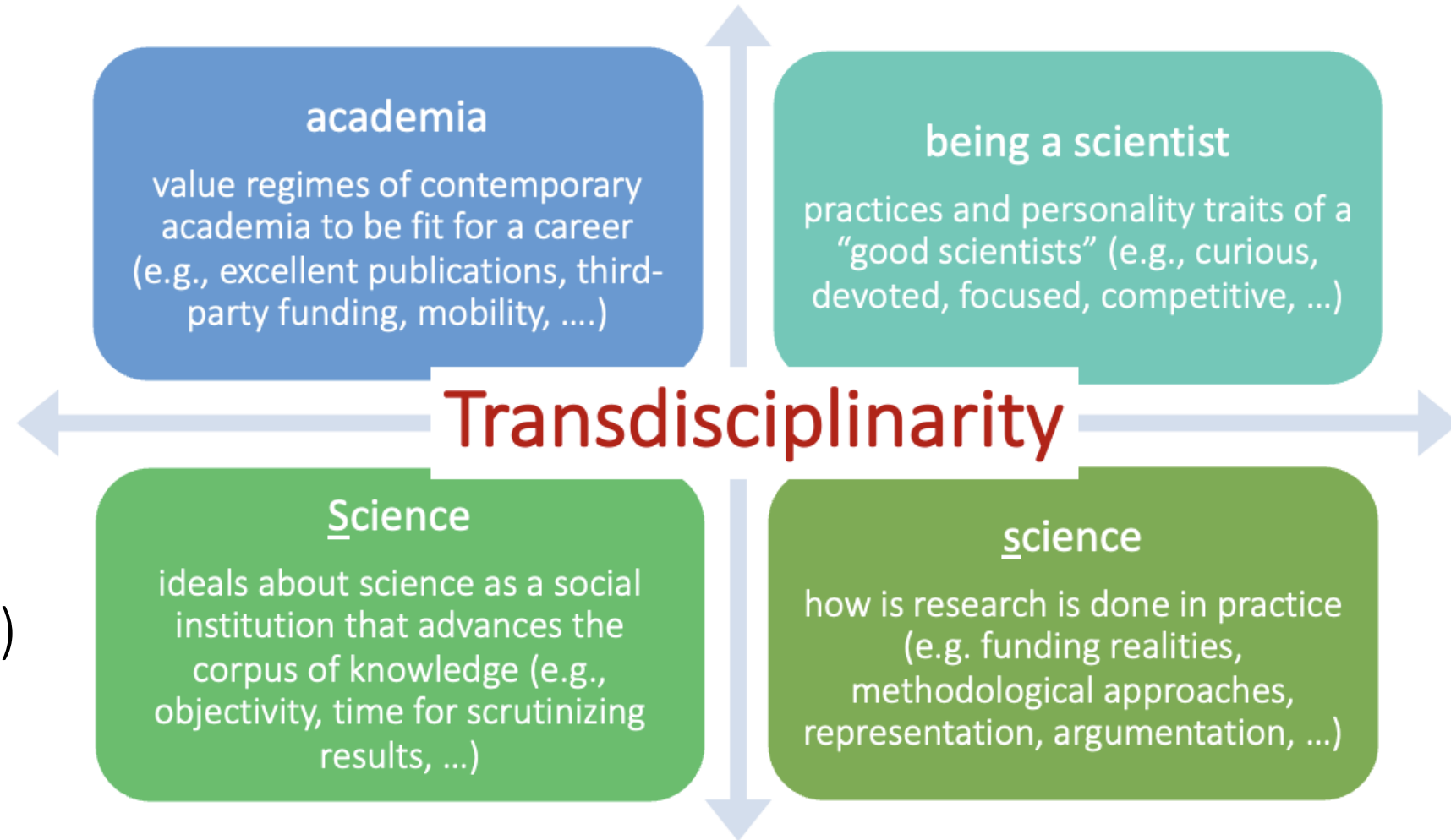


Brain light / Alamy Stock Photo



Bringing transdisciplinarity to the university

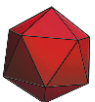
- discrepancies between visions and realities
- Researchers actually have to negotiate their position in four value arenas (which impose sometimes contradictory demands)



Transdisciplinarity – demands and needs

Rethinking

- the temporal structures – TD needs different rhythms, accommodate the different time structures of the involved actor, take time to learn each others ways of knowing => does not have an easy fit with the temporalities of contemporary projectified approaches
- what counts as interesting problems in contemporary academia and how to align this with real-world problems => the question of what is publishable is strongly present
- reward structures need to integrate some clearer elements of transdisciplinary work



Concluding remarks

address societal challenges — open up to transdisciplinary practices — produce excellent new knowledge—innovation and value creation — train the next generation in such open manners

while supporting all these elements, it demands reflection of how to reconcile the different demands both on the institution and the researcher

