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From Science to Praxis

opportunities and challenges

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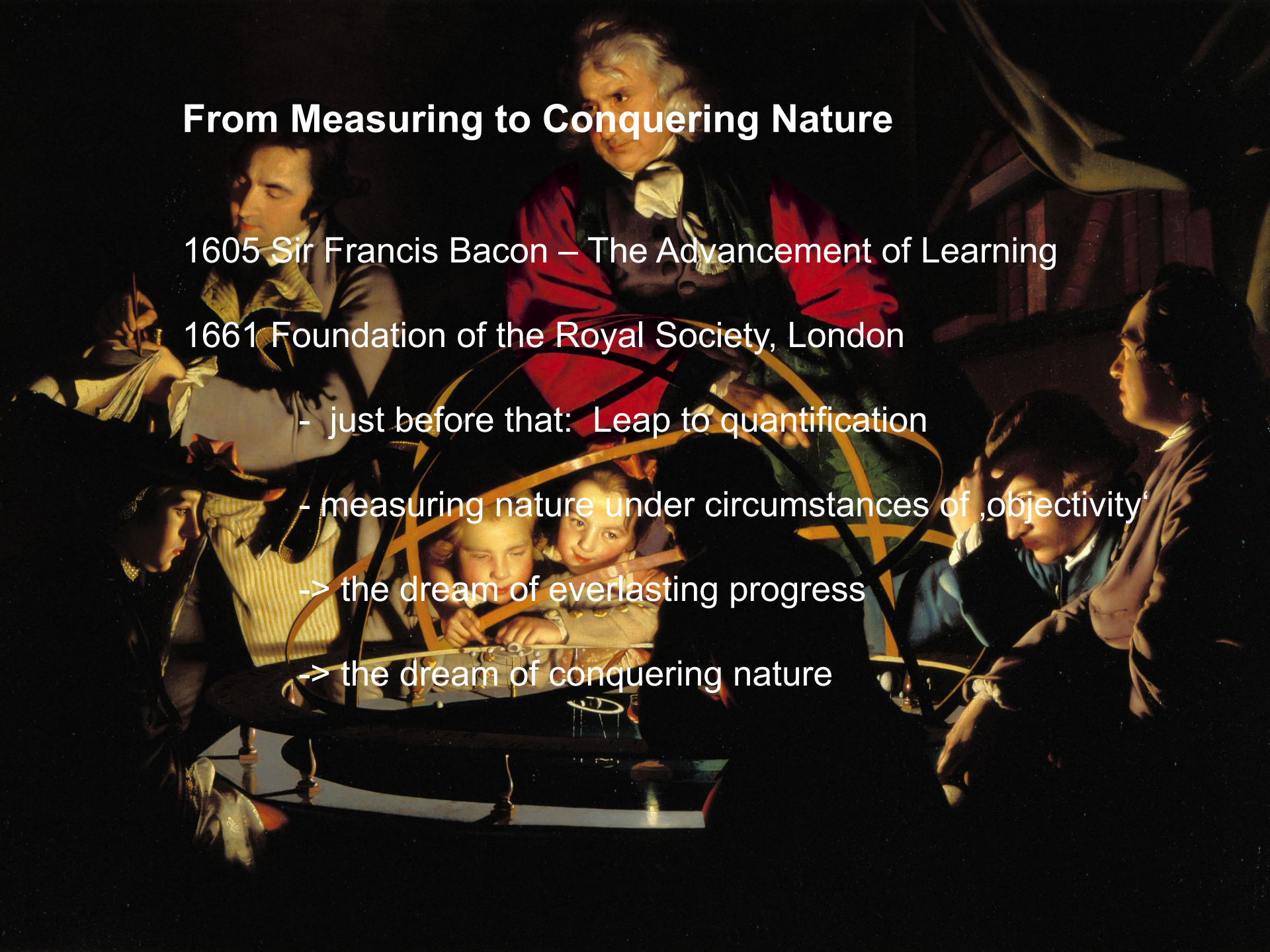
Origin of science disciplines

- some 400 years ago - pre-/industrialisation in Europe
- the first scientific academies in GB: exclusion of the 'human factor', exclusion of everything beyond the 'purity' of the lab
- science as a 'deliverer' to the needs of industrialisation

Measuring nature



From Measuring to Conquering Nature

1605 Sir Francis Bacon – The Advancement of Learning

1661 Foundation of the Royal Society, London

- just before that: Leap to quantification

- measuring nature under circumstances of ‚objectivity'

-> the dream of everlasting progress

-> the dream of conquering nature

New challenges - huge problems of **unsustainability**

- new **limits** are of global nature: e. g. 9 planetary boundaries
- **wicked problems**: complex, structural and systemic / hard to manage and resolve
- **solutions urgently needed** in all involved contexts of local / national, regional, and global development

strong growth of multi-, inter- and transdisciplinary research

e.g. climate and land use change

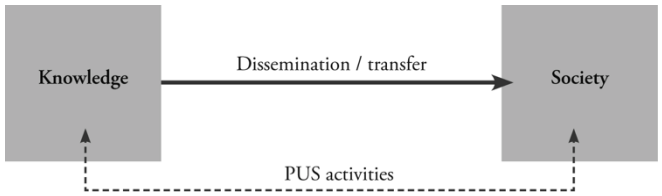
e.g. urban development

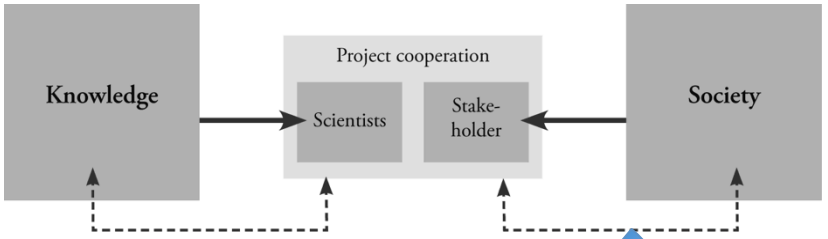
São Paulo
January 2015
Photo: Reuters

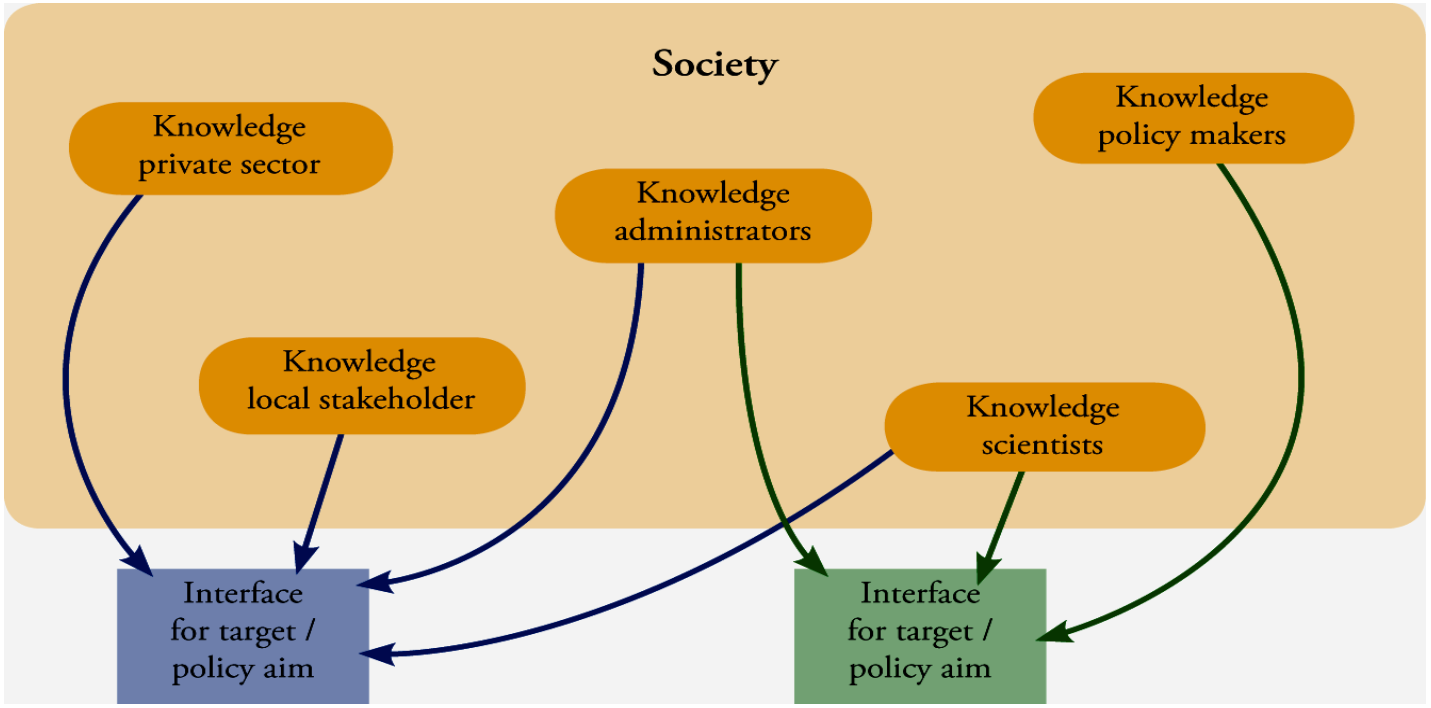
Need of multi-, inter-, transdisciplinarity

- Many current problems only to be observed, analysed, addressed by pluridisciplinary research: multi-, inter- and transdisciplinarity
- strong development from the 1990s to today

Something has changed in the academy...



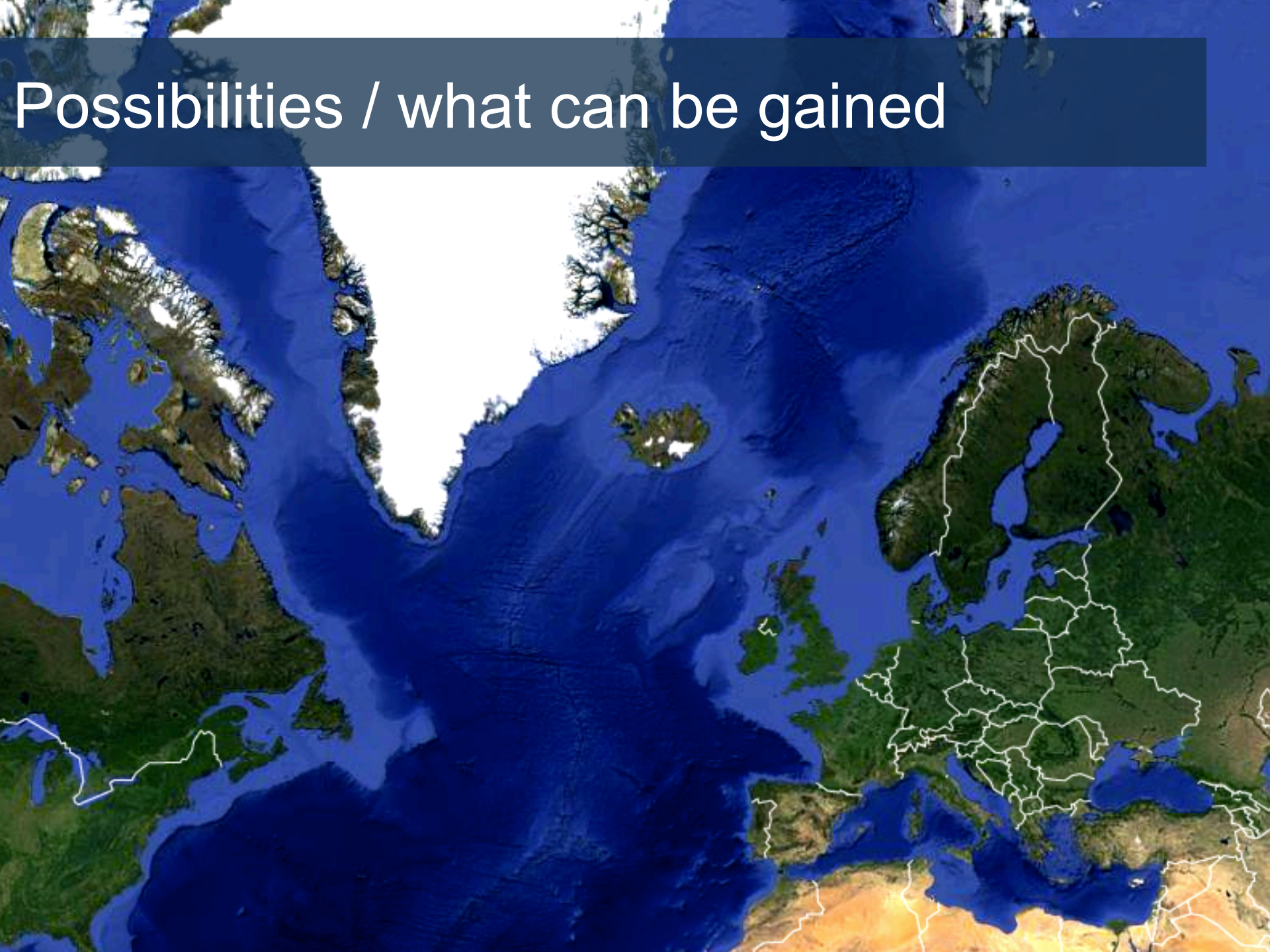




Possibilities / what can be gained

- **strong growth rates** for this kind of research / need of recognition / understanding & support
- possibilities for **applied knowledge**: Icelandic research could build knowledge in various areas of TD and ID research
- more easy to gain **international visibility and connectivity** than in classical disciplinary research
- problem analyser AND contributor to **problem-solving**

Possibilities / what can be gained



Challenges

- unused / more tricky to set-up, support / evaluate, communicate
- esp. evaluation…
- new objectives and roles / functions

-> learning by doing
-> make use of available experiences

8 Principles from VISION *www.visionrd4sd.eu*

8 Principles from VISION

- Joint Agenda Setting
- Co-Design, Co-Production, Co-Delivery and Co-Interpretation of results
- Process-oriented and adaptive programme management
- Adapted Evaluations
- Systemic Approaches
- Communication, Empowerment Engagement and Exploitation
- Career Opportunities and Recognition
- Capacity Building

Recommendations (1)

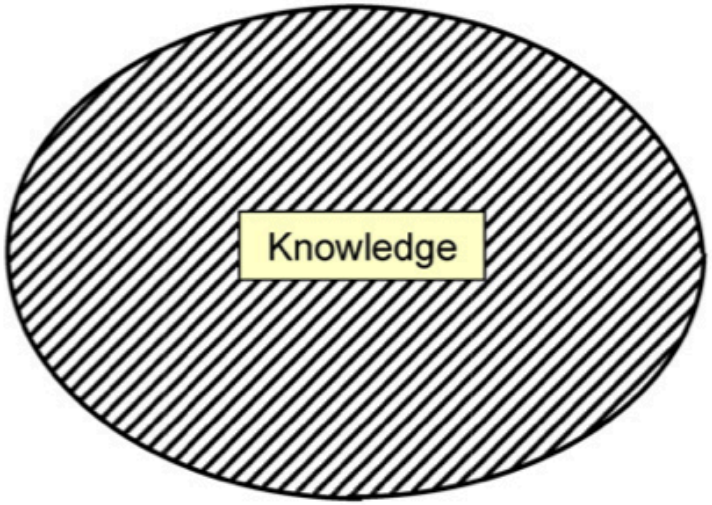
- Start with **one programme** (Icelandic problems / interests)
- **Involve stakeholders** from the very beginning / Co-Design the programme with them and scientists from all relevant disciplines (natural and social sciences, humanities)
- **Get expert support** - from outside / consultants with much experience in supporting TD and ID research
- **"proactive evaluation"** panels fitting to the objectives of the programme

Recommendations (2)

- **Involve** from very early on independent observers and public media to share results
- **co-design** the programme with young / early career scientists and to give them opportunity to carry on with the experience made
- **Cyclic interaction** (lessons learned): Reserve time and funding to evaluate the whole process and to make it possible to learn from the overall experience


Much of what is needed
is **already** taking place

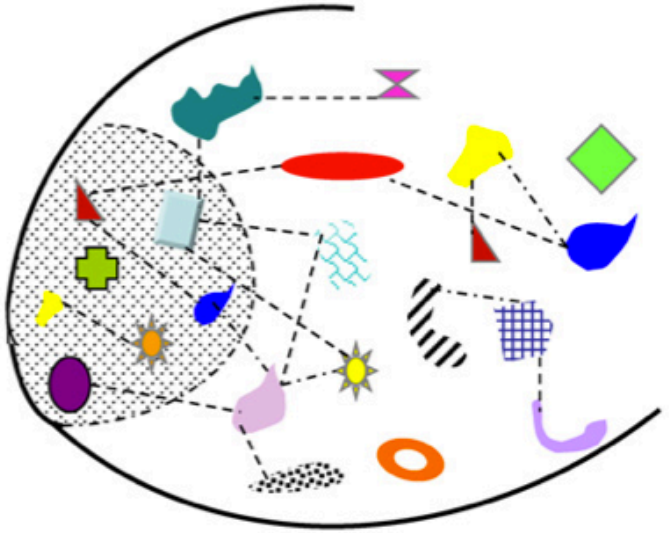
KNOWLEDGE INTEGRATION IN A CLOSED SES DISEMBODIED UNIFORM SYSTEM



"We need to fill the gaps with MORE knowledge of the same type"

(Goal: to interpret reality or to interact with SES more or less in the same way)

KNOWLEDGE INTEGRATION IN AN OPEN SES EMBODIED DIVERSE SYSTEM



"We need multiple types of learning processes to get to know and promote diverse types of knowledge forms and SES interactions"
(Goal: to address multiple sustainability challenges and to reframe current situations in multiple ways)

Tabara, J.D., Chabay, I., Coupling Human Information and Knowledge Systems with social–ecological systems change: Reframing research, education, and policy for sustainability, Environ. Sci. Policy (2012), http://dx.doi.org/10.1016/j.envsci.2012.11.005

New roles
for scientists and science funding

- Dealing with open knowledge systems
- Cooperation within and beyond the school / academia
- Listen to others
- Recognition and integration of other forms of knowledge
- Brokering knowledge
- Open communication / transparency
- Remain independent

…

Support

- **Definitions hand-out**
- **Experiences of others** – see link list www.visionrd4sd.eu
- **Tool Box** from this project / initial list of criteria, literature, experiences made etc. available at: http://infact.formas.se/preview/20-VISION_RD4SD_Resource_Tool___test_version/index.html#/21
- **Reykjavik Briefing**: Paper written after the Final conference of this project – open to use for communication of the mentioned need for TD, ID and MD research

Thank you for your attention

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