Transformation and Knowledge

For collaborations for change and global educational goals

EAUC 2018

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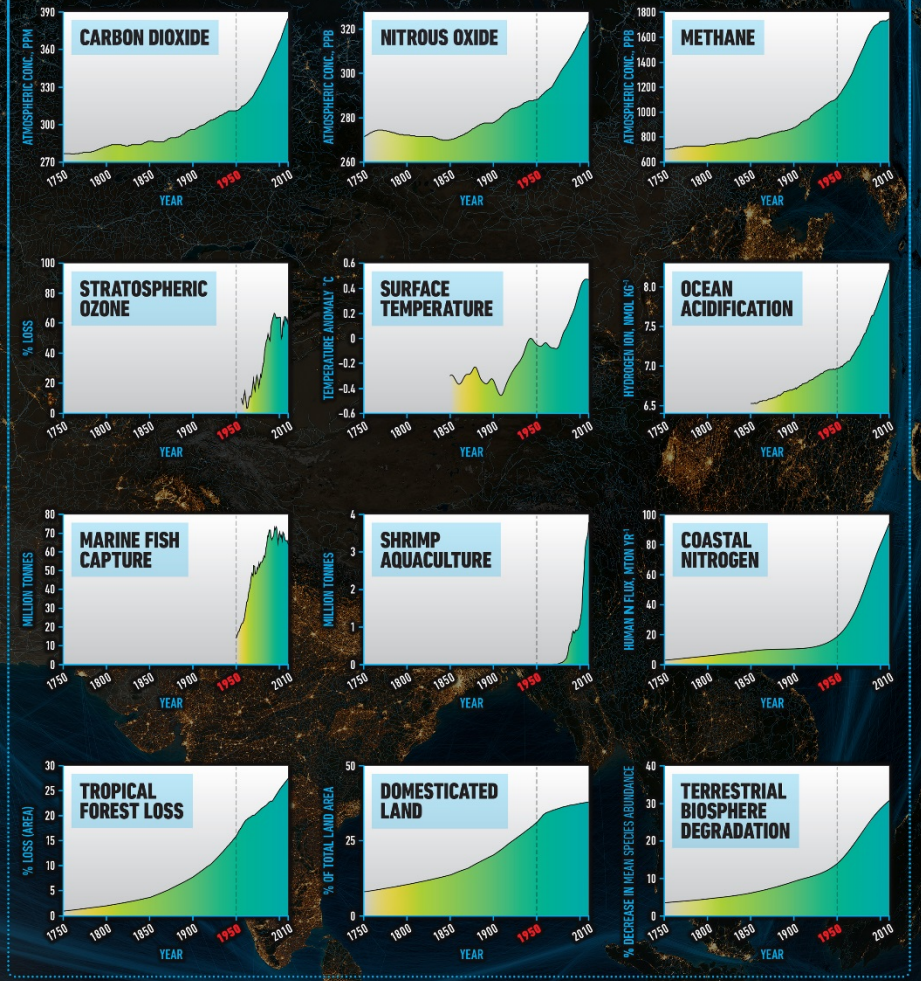
Climate change changes everything…
Meeting 1.5°C
= Transformation
Not meeting 1.5°C
= Transformation

THE GREAT ACCELERATION

SOCIO-ECONOMIC TRENDS

EARTH SYSTEM TRENDS



REFERENCE: Steffen, W., W. Broadgate, L. Deutsch, O. Gaffney and C. Ludwig (2015). The Trajectory of the Anthropocene: the Great Acceleration, Submitted to *The Anthropocene Review*.

MAP & DESIGN: Félix Pharand-Deschênes / Globaïa

How does knowledge and knowing fit with this story of transformation and change?

- **Part 1: The challenges of past and current knowledge production**
- **Part 2: What kinds of things do we need to do differently?**
- **Part 3: What does this mean for knowledge systems?**

Part 1

The story so far…

Renaissance

'Rebirth'

14th –17th Century

- Rebirth of Greek/Roman thought
- Rationalist outlook: human agency not divine intervention is important

Scientific Revolution

1543-1687
(Copernicus - Newton)

- Science distinct from philosophy and technology
- Systematic experiments, mechanical and mathematical view of the world
- 'Observe with open mind'

Descartes

Perception is not reliable
I am separate from what I observe

Continues to be pervasive
'I drag myself out of bed'

Beginnings of separation of 'research' from 'practice'

Enlightenment

'Age of Reason'

18th Century

- Sociology, economics, law, politics
- Lots of universities, societies, libraries
- Tech and science (steam engines, hot air balloons, discover CO2)
- Emphasis on free speech and thought

Voltaire/Rousseau

Argue for a society based on reason not faith, new civil order based on natural law, science based on experiments and observation.


Massive scientific & technological advances & societal benefits
…but also problems

1. Intentional destruction

Military technologies with massive destructive capabilities, ability to ‘colonise’, wipe out cultures, languages, species, peoples.

2. Appropriation of ownership

e.g. Technologies patented and controlled, locking in users (e.g. GM crops).

3. Limiting space for different kinds of solutions

Focus on certain kinds of evidence can lead to use of solutions that best fit methods that provide such evidence (e.g. medical drugs).

4. Unintentional, highly interconnected outcomes

Climate change, obesity, mental health, plastic, air pollution

All images: pngtree.com

Challenges

What are some of the underlying issues?

1. Knowledge vs Wisdom

Change = more than knowledge

Knowledge (research) + **What is good (ethics)** + **What is beautiful (aesthetics)**

Hanlon, P. et al (2012). Perspectives in Public Health 132, 313-319.

Universities need to develop wisdom, not just knowledge

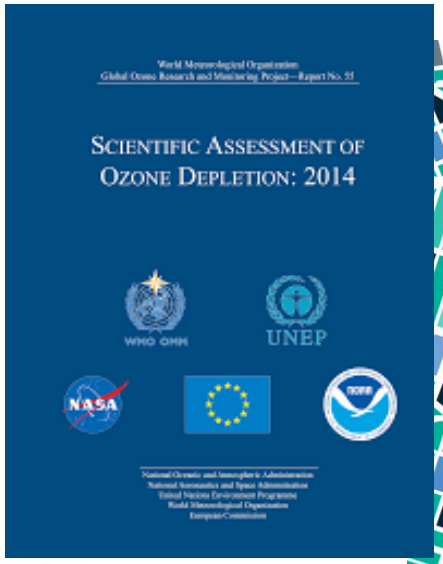
Maxwell, N. (2014) How universities can help create a wiser world. Imprint Academic, Exeter, UK

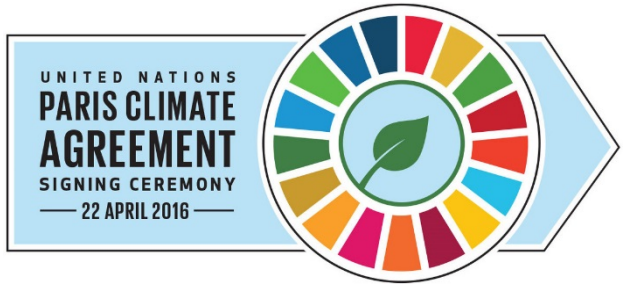
Lack of accountability of science to society…

Kläy, A. et al 2015. Futures. 65: 72-85

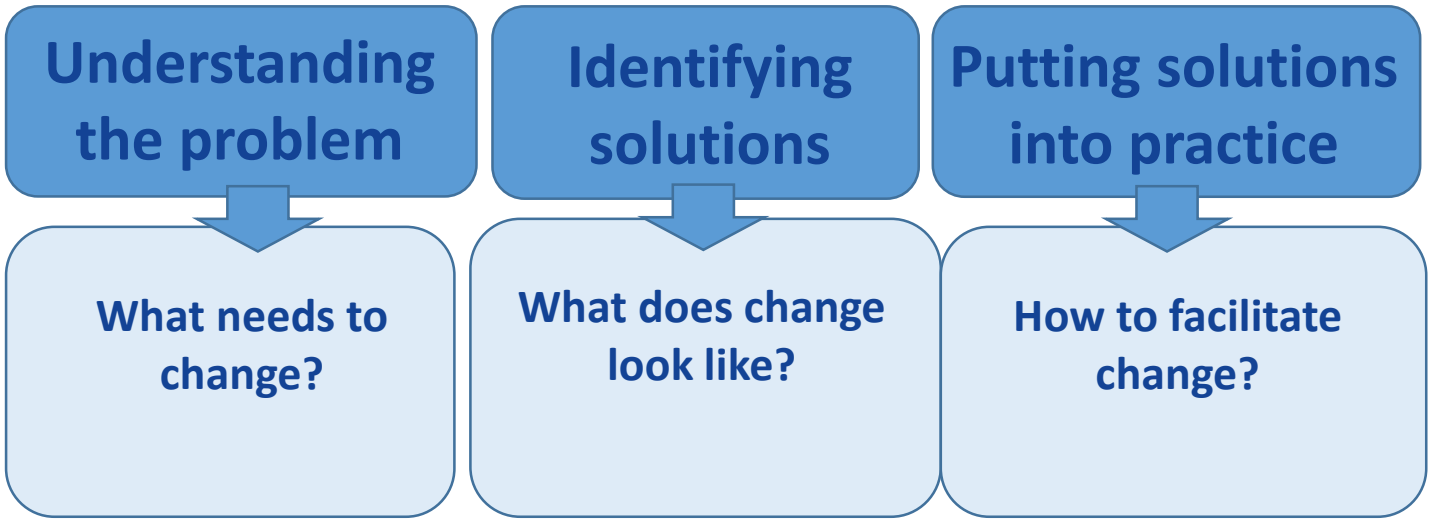
2. Limited attention to certain kinds of knowledge

e.g. demand is growing for ‘how to’ knowledge





But in academia, we aren't focusing on 'how to'



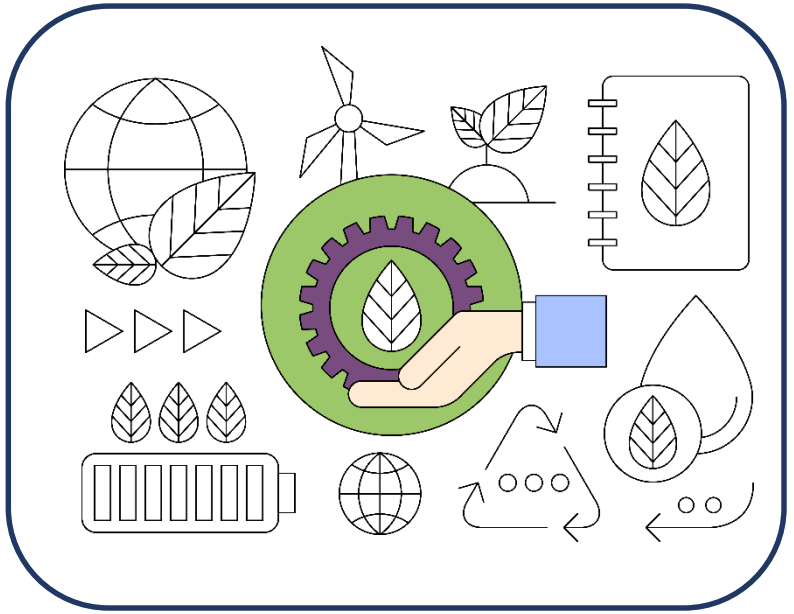
Needs a different kind of knowledge

1. **Epistemic knowledge**
2. **Techne (know how)**
3. **Phronesis (wisdom)**

} **Practical knowledge**

pngtree.com

Aristotle (2004) The Nicomachean ethics (Translated by J. A. K. Thomson). Penguin Books, London.



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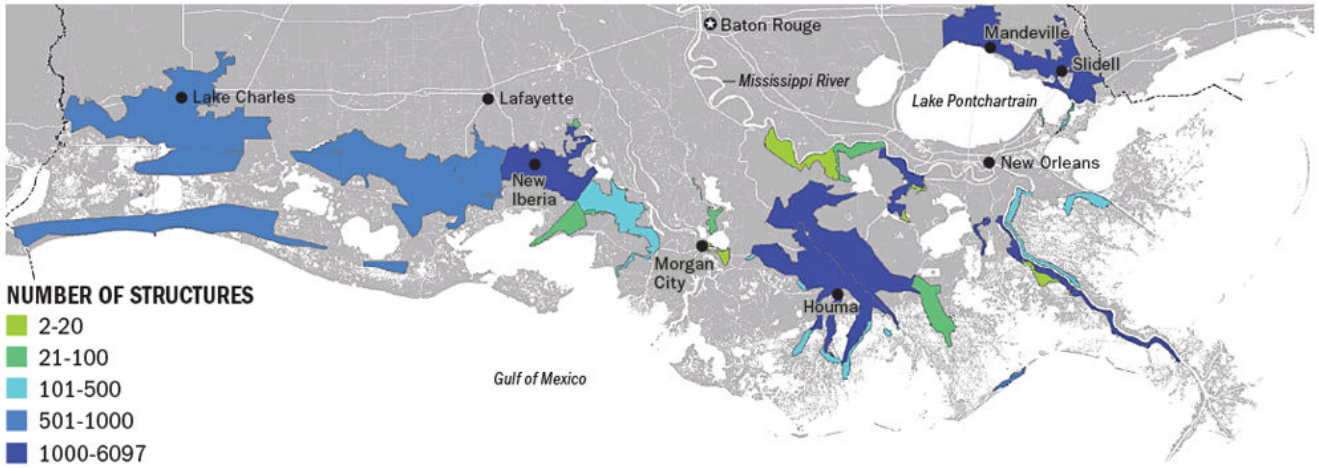
Separation of science from practice…

3. Old approaches wont work

Areas in Louisiana where as many as 26,000 structures would have to be floodproofed, elevated or bought out due to storm surge flooding threat:



Source: Louisiana Coastal Protection and Restoration Authority

Part 1: Summary

- ‘Self’ separate from what is observed, with powerful outcomes;
- But also challenges
  - Separation of science from practice;
  - Limited kinds of knowledge;
  - Divorced from what is good and beautiful
  - Can’t address problems it has also produced
- 21st Century challenges require something different…

Part 2: What do we need to do differently?

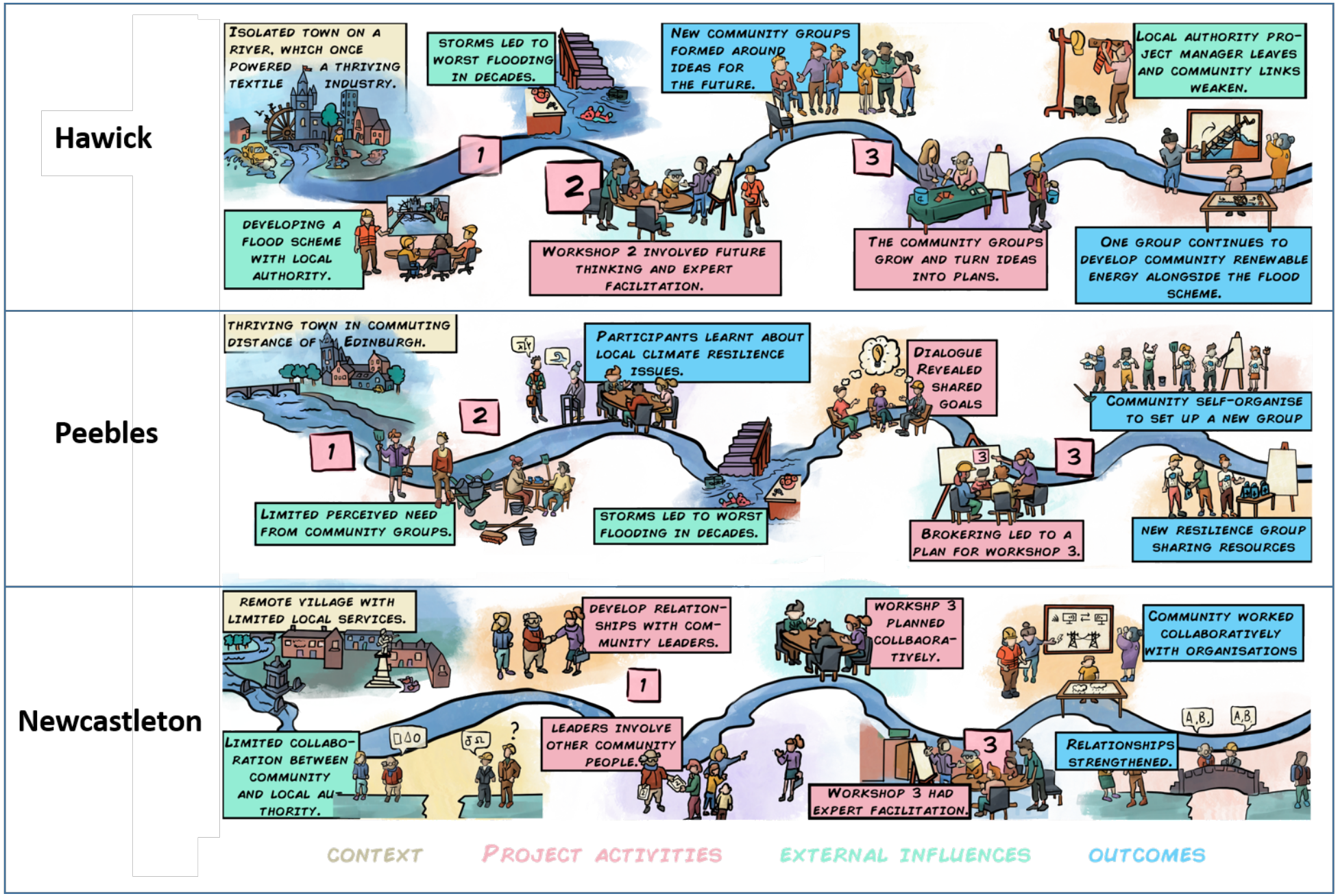
1. Learn as if ‘from within’

A common assumption in science:

Researchers can and should be external to that which is observed

Need to see ourselves as part of the system…

Scottish Borders Climate Resilient Communities



http://www.fazey.webeden.co.uk/#/climate-resilience/4594287389

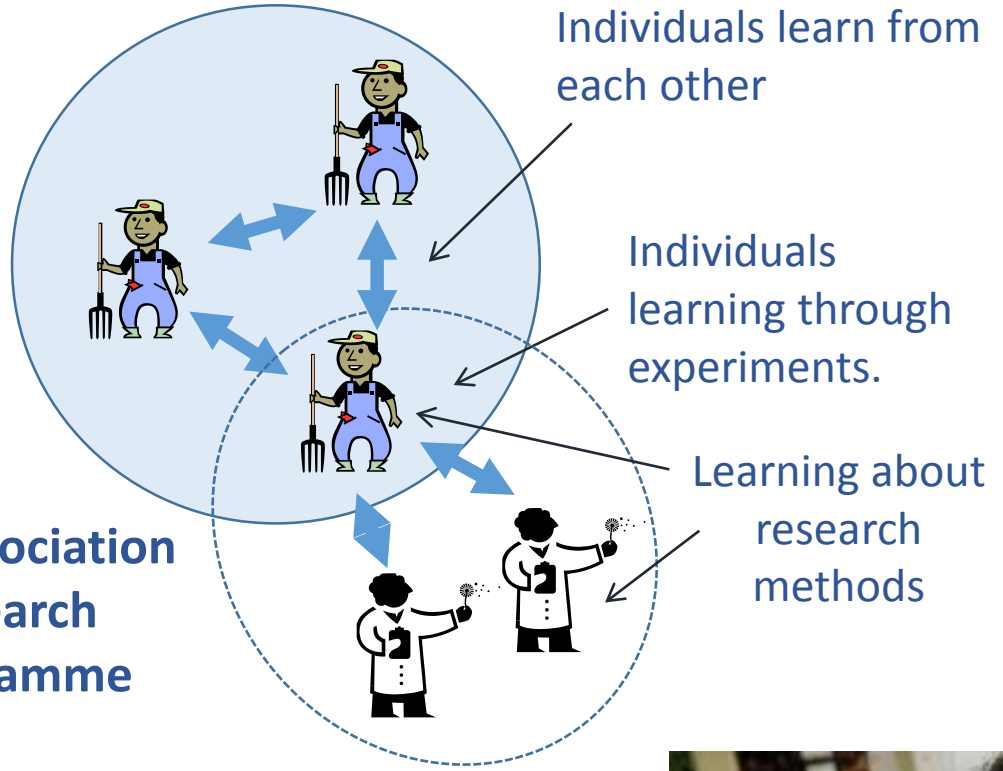
Changes what we think counts as ‘research’

1. **Research on practice**
2. **Research for/as practice**
3. **Research through practice**

2. Who is expert, teacher, learner?

Andrew Bell, 1753 – 1832

By 1830s, 10-12,000 Schools



Soil Association research programme

School in the Cloud

Self-organising learning
Sugata Mitra

3. Be explicit about the ethics driving knowledge production

- **Ethics driving research are different to ethics of learning**
- **BPA Research Strategy:**
  - Earth care
  - People Care
  - Fair Shares

Permaculture
ASSOCIATION

4. Ask new kinds of questions

E.g. ‘re-entry’

- **How sustainable is sustainability?**
- **How can transformations be transformed?**
- **How can we leverage leverage?**
- **What are the politics of politics?**
- **How do we conceptualise concepts?**

Old concepts “*appear to close around upon themselves*” while also leading outward to transcend existing boundaries in ways that seem to “*have turned inside out, [where] the inside is the outside*”

L.H. Kauffman, Eigen-forms: special issue “Heinz von Foerster in memoriam”, Kybernetes 34 (2005) 129–150.

5. Learn reflexivity

Las Meñinas - 'The Ladies-in-waiting'
Diego Velázquez de Silva. 1656.

1. A painting about painting

Research to reflect on research as a methodology?

2. The painter makes himself the object.

Researchers reflecting on their role in research and learning?

3. Attention to the social–historical context of (the) painting.

Reflecting on research in relation to society?

Davis, J.B., Klaes, M., 2003. Reflexivity: Curse or cure? Journal of Economic Methodology 10, 329-352.

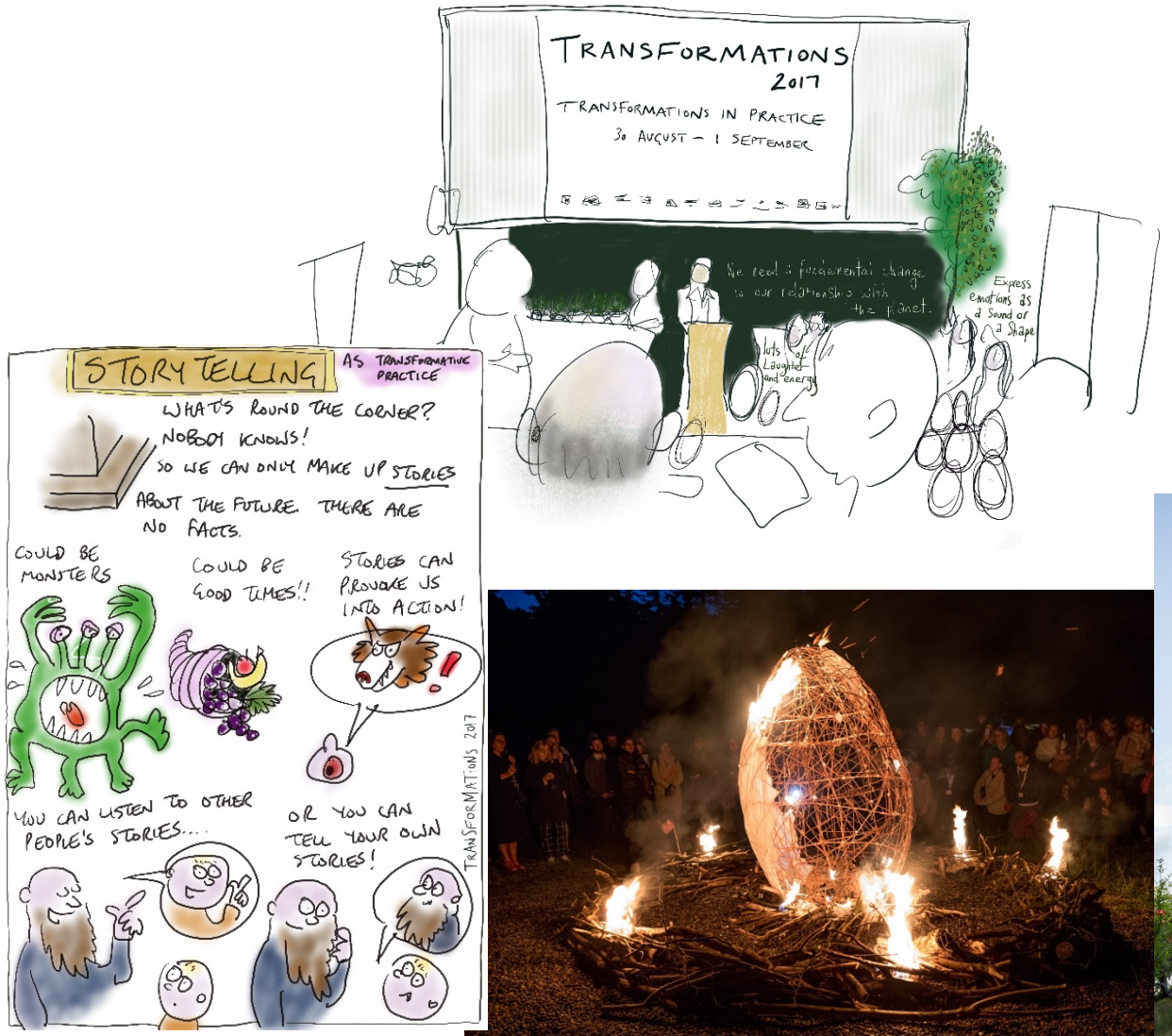
Part 2: Summary

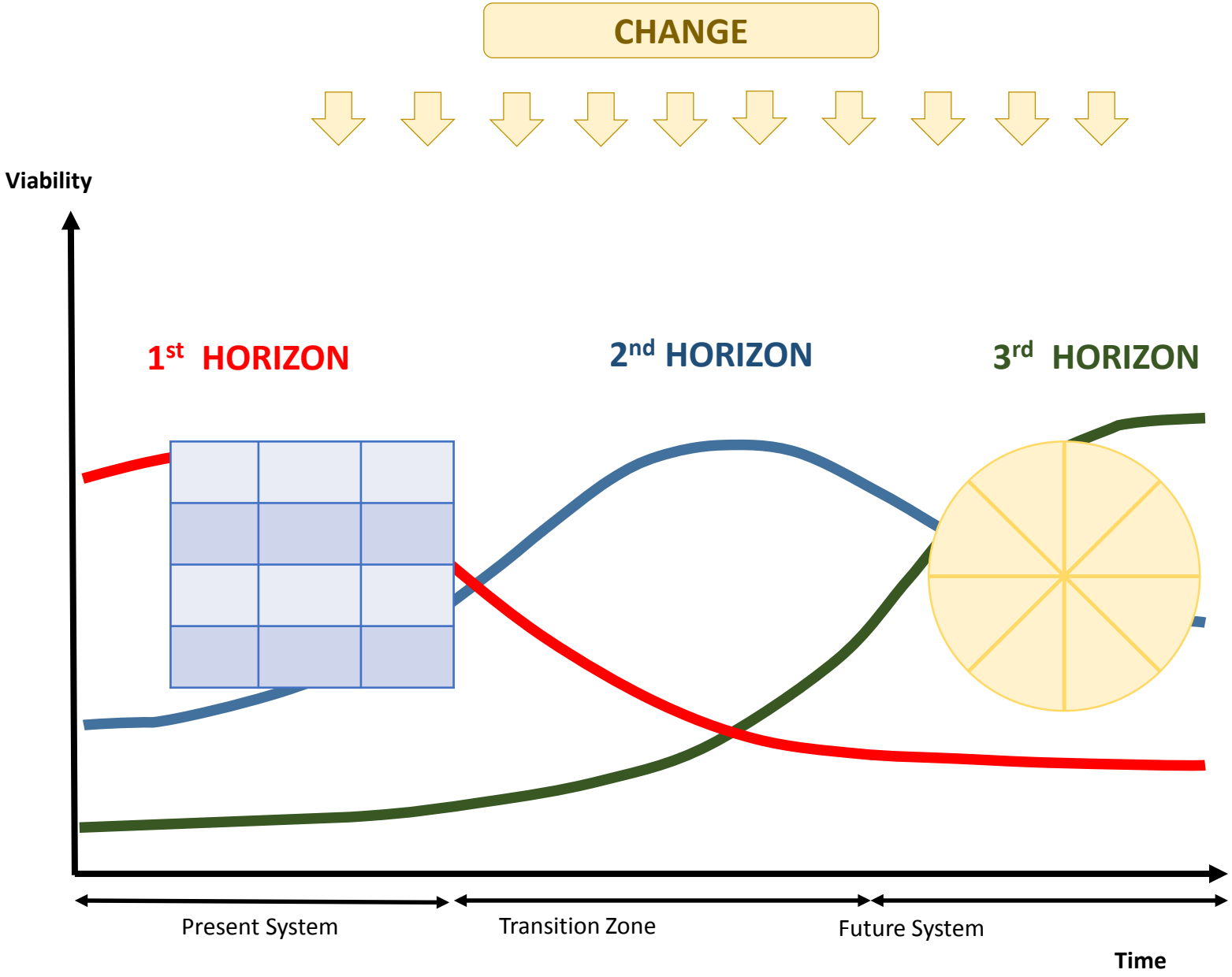
- Have we forgotten what it means to learn?
- How can we learn better, deeper, and wider?
- Knowledge system needs to change…
- System is stacked up against change – highly self referential

Part 3: How can we transform knowledge systems?

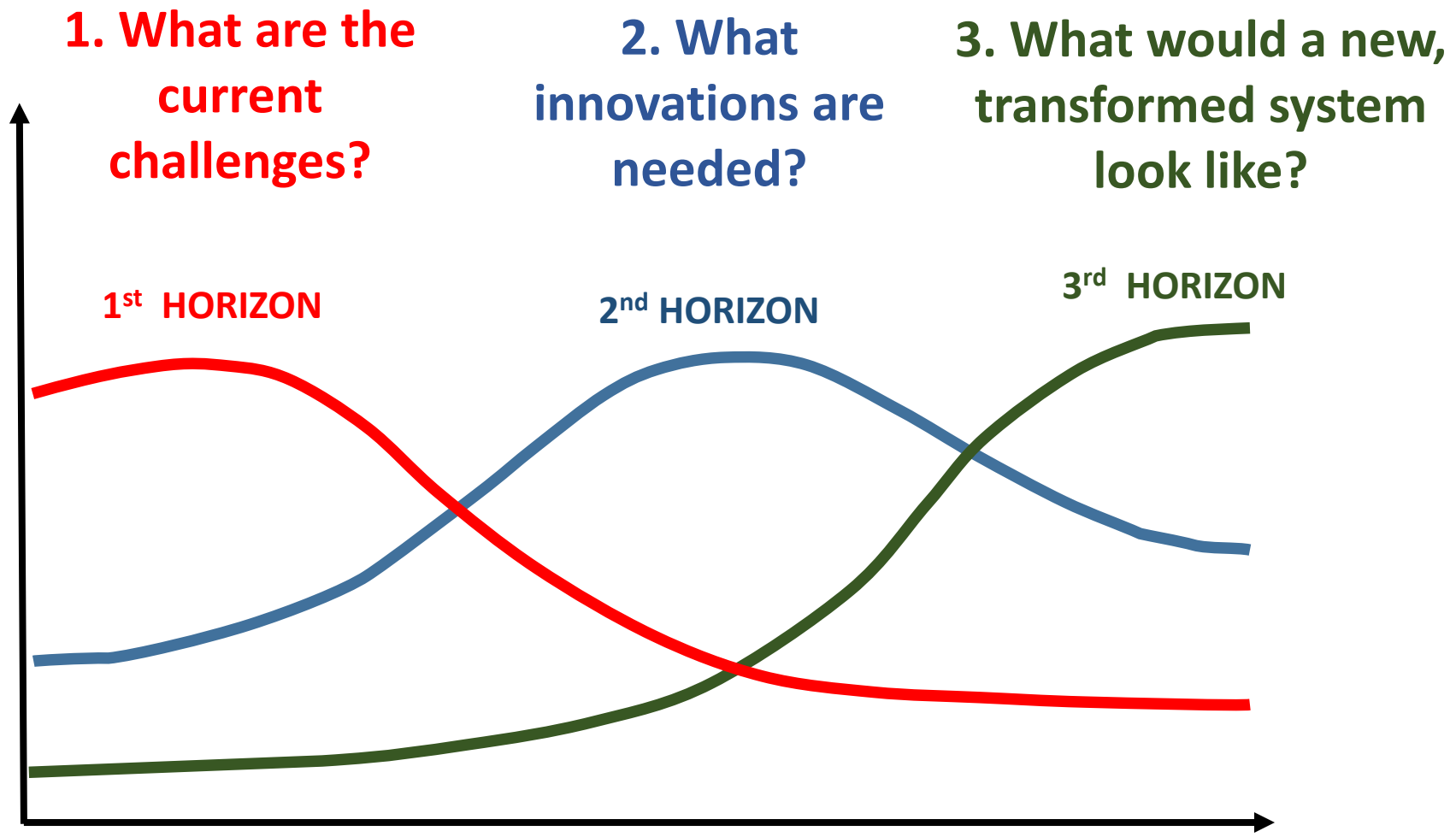
Transformations 2017

University of Dundee





Sharpe, B. et al 2016 Three horizons: a pathways practice for transformation. *Ecology and Society* 21(2):47.



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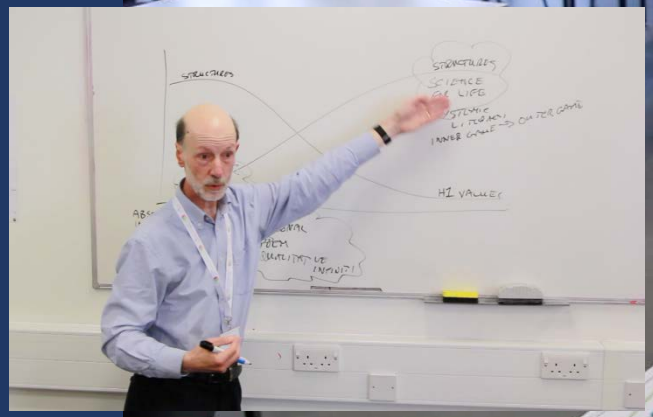
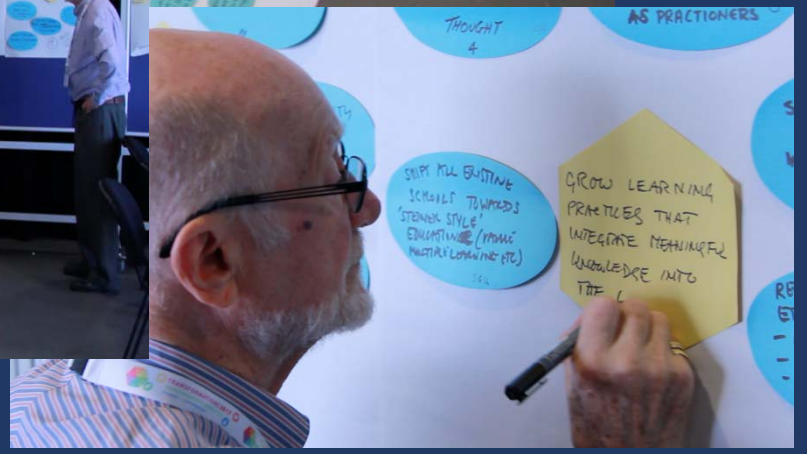

STRENGTHS
HI VALUE

FANTA
FRESH DOUGH DAILY


THOUGHT
4
AS PRACTIONERS
GROW LEARNING
PRACTICES THAT
INTEGRATE MEANINGFUL
KNOWLEDGE INTO

Results

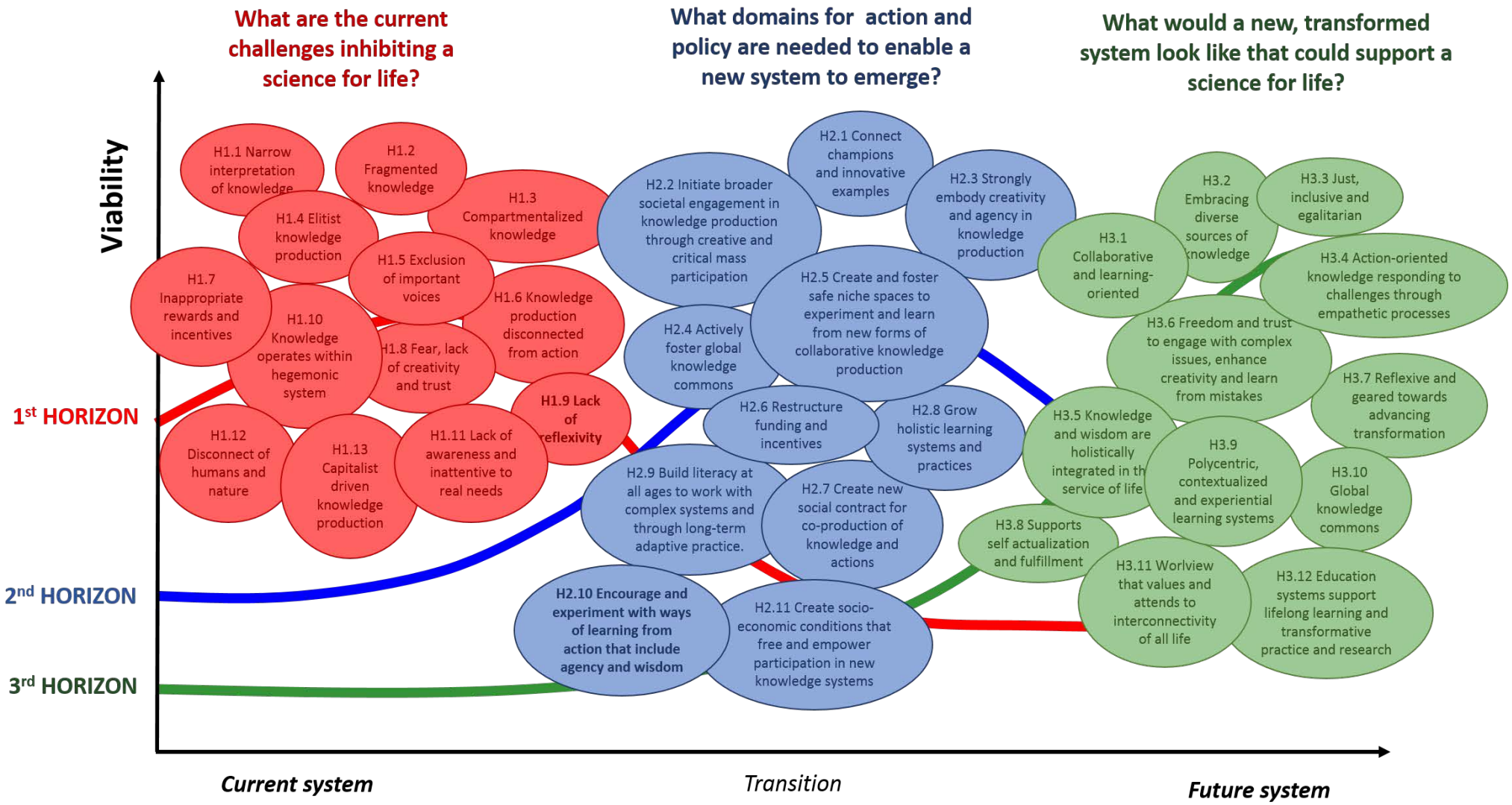
350 participants

Around 700 Post-Its as inputs, generating

H1: 61 Ovals, 13 clusters

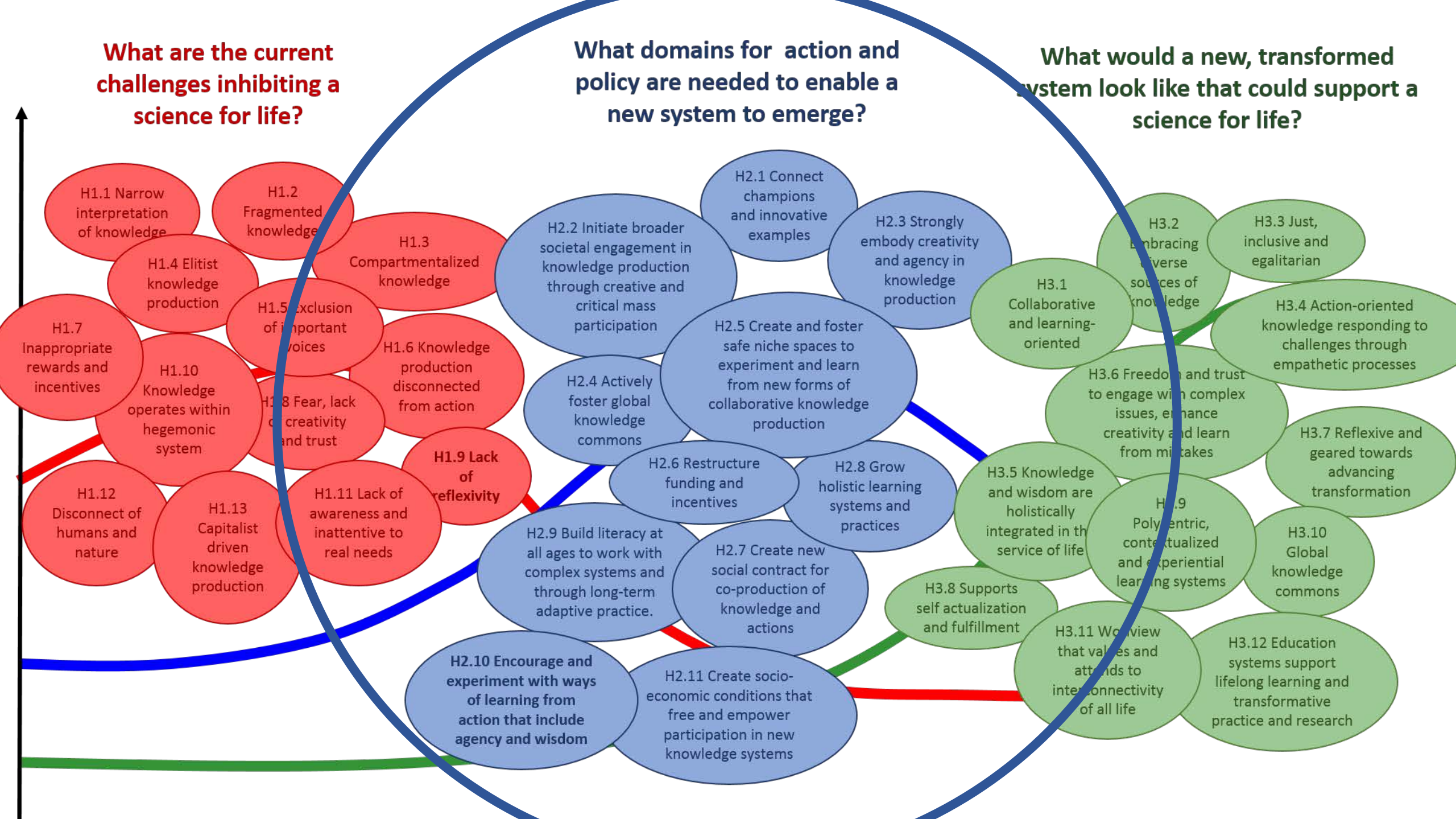
H2: 84 Ovals, 11 clusters

H3: 66 Ovals, 12 clusters



Transforming knowledge systems

Old system challenges	Future system vision
Knowledge focused	Wisdom focused
Disconnected, compartmentalised	Connected, inter-related
Fragmented knowledge	Captures interconnectivities and complexities
Avoids ethics and aesthetics	Works with ethics and aesthetics
Individual, egocentric	Collaborative, egalitarian
Incremental	Transformational
Exclusive	Participative
Science for science	Science for whole of society
Low creativity	High focus on creativity
Self-referential	Reflexive
Fear	Trust
Exploitation, competition	Intrinsic fulfilment, inclusivity and justice
Outcomes for a few	Outcomes for everybody


What are the current challenges inhibiting a science for life?
What domains for action and policy are needed to enable a new system to emerge?
What would a new, transformed system look like that could support a science for life?
H1.1 Narrow interpretation of knowledge
H1.2 Fragmented knowledge
H1.3 Compartmentalized knowledge
H1.4 Elitist knowledge production
H1.5 Exclusion of important voices
H1.6 Knowledge production disconnected from action
H1.7 Inappropriate rewards and incentives
H1.8 Fear, lack of creativity and trust
H1.9 Lack of reflexivity
H1.10 Knowledge operates within hegemonic system
H1.11 Lack of awareness and inattentive to real needs
H1.12 Disconnect of humans and nature
H1.13 Capitalist driven knowledge production
H2.1 Connect champions and innovative examples
H2.2 Initiate broader societal engagement in knowledge production through creative and critical mass participation
H2.3 Strongly embody creativity and agency in knowledge production
H2.4 Actively foster global knowledge commons
H2.5 Create and foster safe niche spaces to experiment and learn from new forms of collaborative knowledge production
H2.6 Restructure funding and incentives
H2.7 Create new social contract for co-production of knowledge and actions
H2.8 Grow holistic learning systems and practices
H2.9 Build literacy at all ages to work with complex systems and through long-term adaptive practice.
H2.10 Encourage and experiment with ways of learning from action that include agency and wisdom
H2.11 Create socio-economic conditions that free and empower participation in new knowledge systems
H3.1 Collaborative and learning-oriented
H3.2 Embracing diverse sources of knowledge
H3.3 Just, inclusive and egalitarian
H3.4 Action-oriented knowledge responding to challenges through empathetic processes
H3.5 Knowledge and wisdom are holistically integrated in the service of life
H3.6 Freedom and trust to engage with complex issues, enhance creativity and learn from mistakes
H3.7 Reflexive and geared towards advancing transformation
H3.8 Supports self actualization and fulfillment
H3.9 Polycentric, contextualized and experiential learning systems
H3.10 Global knowledge commons
H3.11 Worldview that values and attends to interconnectivity of all life
H3.12 Education systems support lifelong learning and transformative practice and research

What are the implications of this for Sustainability Education?

Regenerative change-making education?

Major tech advances

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Regenerative
Accessible, Inclusive
Non-hierarchical
Radical and rapid learning
High innovation

Changes in demand

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Appropriating value

Transformations

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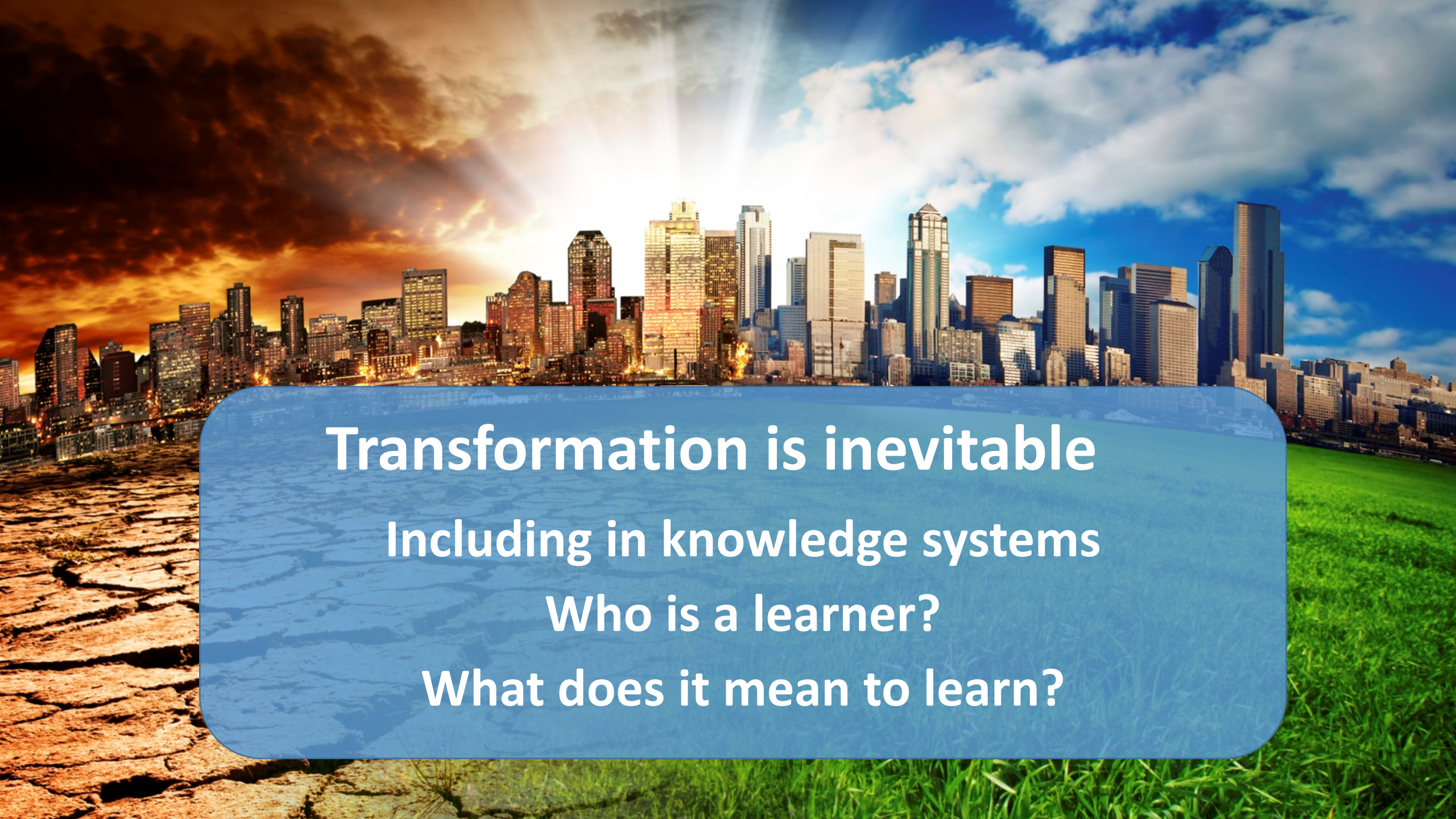
Extensive expertise


Transformation is inevitable
Including in knowledge systems
Who is a learner?
What does it mean to learn?