



Meta-Science and Deep Societal Transformation

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*Environmental Protection Agency funded project



Deep Societal Innovation for Sustainability and Human Flourishing



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26 January 2025



Deep Societal Innovation for Sustainability and Human Flourishing

<https://www.ucc.ie/en/dsis/>

- **Meta-Science; our understanding**
- **DSIS; Context**
- **DSIS; Ideas**
- **DSIS; Resonance with Meta-Science**

DSIS: Deep Societal Innovation for Sustainability and Human Flourishing project
(EPA funded, 2024-2028)

Other investigators: Prof. Maggie O'Neill, Dr Ger Mullally, Simone Koll O'Rourke

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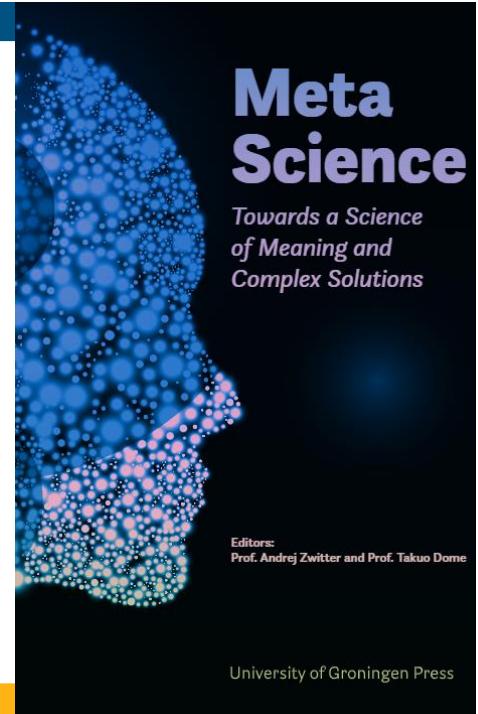
‘Meta Science’:

‘Meta-Science, defined as a science of meaning and complex solutions.’

“Science has **lost its ethical imperatives** as it **moved away** from a **science of ought** to a **science of is**. Subsequently, it might have answers for **how** we can address global challenges, such as climate change and poverty, but not **why** we should. This **supposedly neutral** stance leaves it to **politics** and **religions** (in the sense of non-scientific fields of social engagement) **to fill in the values**. The problem is that through this concession, science implicitly acknowledges that it is not of universal relevance.”

<https://books.ugp.rug.nl/ugp/catalog/book/137>

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University of Groningen Press

‘Metascience’: other conceptions..

[Home](#) > [What we do](#) > [Browse our areas of investment and support](#) > [UK Metascience Unit](#)

Area of investment and support

UK Metascience Unit

Established in 2024, the UK Metascience Unit is a small team of policymakers, analysts and funding delivery specialists who work across UK Research and Innovation (UKRI) and the Department for Science, Innovation and Technology (DSIT). The unit is co-led by Dr Jen Gold and Dr Ben Steyn.

All our work starts from a simple idea: that the scientific method, so powerful in so many areas of life, should be systematically and routinely applied to how we practice, fund and support science itself.

Budget: An initial budget of £10 million from 2024 to 2027

Duration: Ongoing

Partners involved: UK Research and Innovation (UKRI), Department for Science, Innovation and Technology (DSIT)

<https://www.ukri.org/what-we-do/browse-our-areas-of-investment-and-support/uk-metascience-unit/>



<https://metascience.info/>



<https://metascience.com/>

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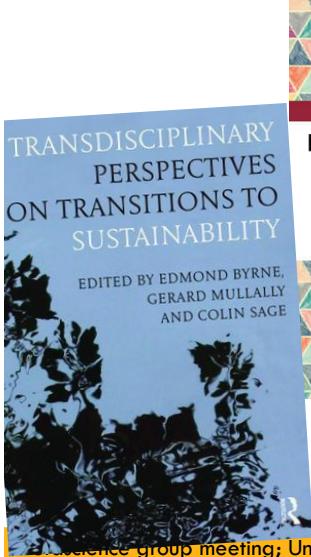


Deep Societal Innovation for Sustainability and Human Flourishing: **Context**

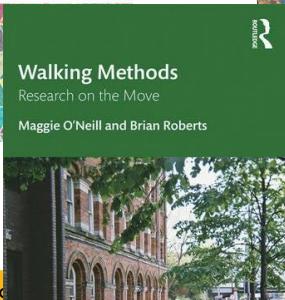
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DSIS Context: Exploring Transdisciplinary Transformation to Sustainability and Human Flourishing



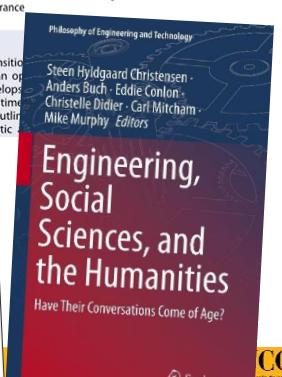
Edited by
Ian Hughes, Edmond Byrne, Gerard Mullally,
and Colin Sage



Open Access

Deep Institutional Innovation for Sustainability and Human Development

Ian Hughes^a, Edmond Byrne^a, Markus Glatz-Schmallegger^b, Clodagh Harris^a, William Hynes^c, Kieran Keohane^a and



Broader Societal Context (for DSIS, science, society):



3 Apr 2024

1. Faster **tech** adoption
2. Growing and increasingly interconnected risks
3. Rising **complexity**

https://www.ey.com/en_gl/innovate-on-realized/how-can-rethinking-everything-bring-you-clarity

In a complex world, how can rethinking everything bring you clarity?



https://www.ey.com/en_gl/innovate-on-realized/how-can-rethinking-everything-bring-you-clarity

Authors
Gil Forer
Digital and Business

In a more volatile and interconnected environment, growth entails rethinking fundamental questions and learning from diverse disciplines.

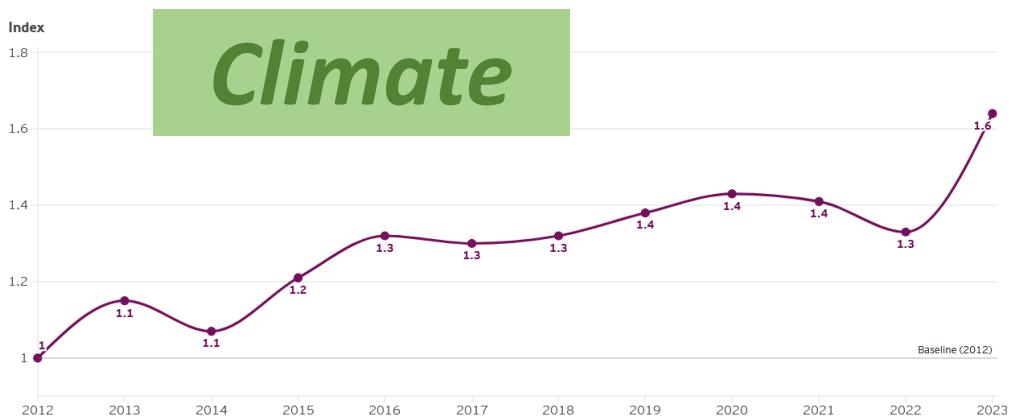
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Climate Related Disruption Increasing..



Climate Disruption has steadily climbed due to rising temperatures, sea levels, and the impact of natural disasters.

Climate Disruption Index



Note: Climate Disruption Index is a composite of change in global temperatures (land and sea), mean sea level change, number of billion-dollar natural disasters, and global fossil fuel carbon dioxide emissions. Indexed to 2012.

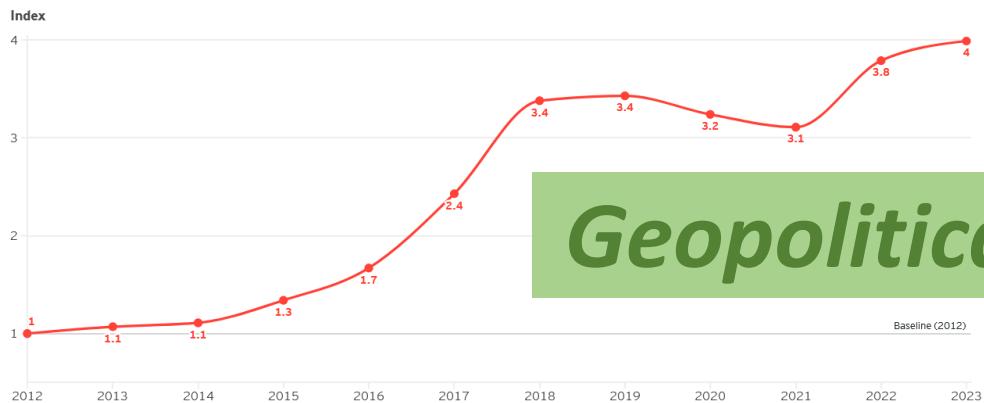
Source: EY (2024)

Geopolitical Uncertainty..



Geopolitical uncertainty has accelerated due to factors such as global trade disputes, armed conflicts and forced migration.

Geopolitical Uncertainty Index



Note: Indexed to 2012. Composite of political violence, geopolitical risk, forced migration, global income inequality, cyber attacks, and the World Uncertainty Index.

Source: EY (2024)

Technology Disruption..



Technology disruption

has accelerated with the rise of internet usage, computing power, and adoption of artificial intelligence.

Technology Disruption Index



Note: Indexed to 2012. Composite of amount of data produced, share of the world population using the Internet, computational capacity of the fastest supercomputers, number of cyber attacks, mentions of job loss due to AI, ChatGPT usage, and number of AI ethical incidents and controversies.

Source: EY (2024)

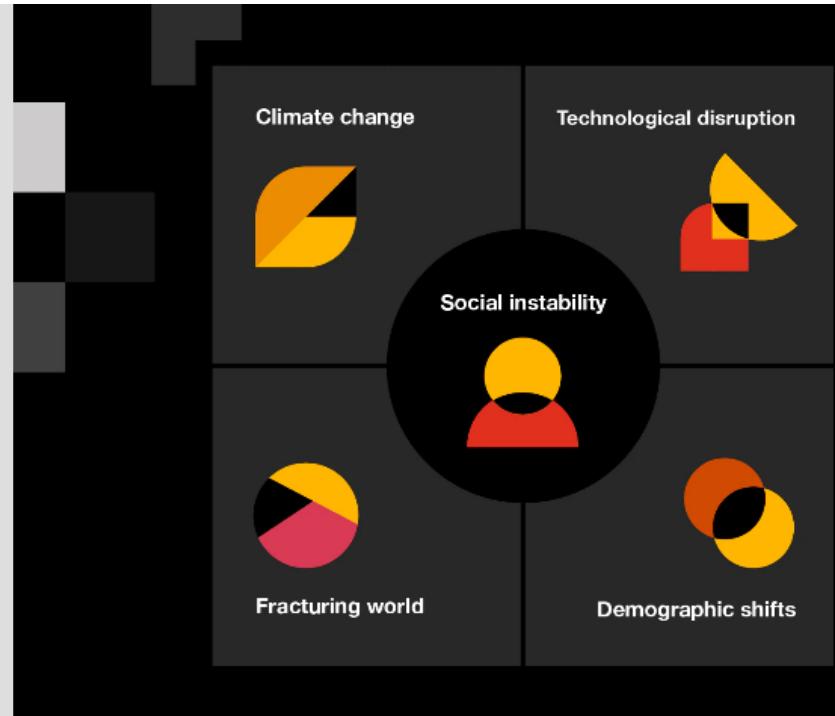
Megatrends

Five global shifts reshaping the world we live in
September 2024



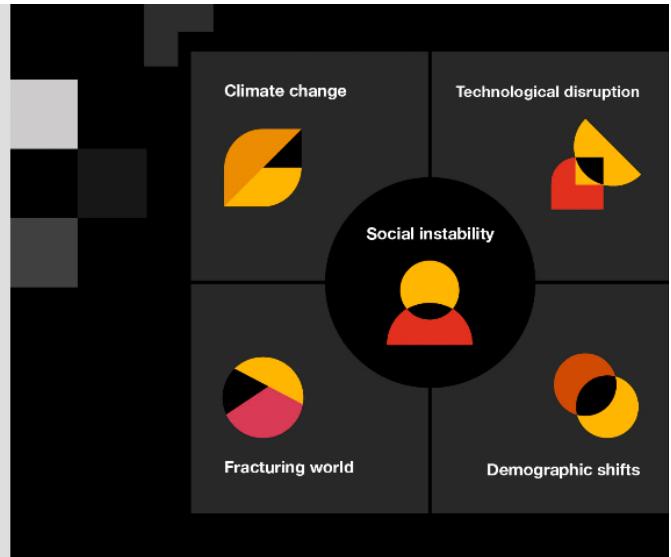
Megatrends

pwc, September 2024



The five Megatrends have already and will continue to change the world for many years to come. Each one of them implicates existential questions and has the potential to bring humanity to a tipping point. But it's the interaction between these Megatrends that makes them particularly hard to deal with. Each Megatrend is exacerbating the social challenges the world faces, and the magnitude of the social challenges makes it difficult for societies to come together and fight the negative effects of climate change, technological disruption, demographic shifts, and a fracturing world.

**There is no equivocating:
Humanity is in a race against
time.**



pwc, Megatrends, September 2024

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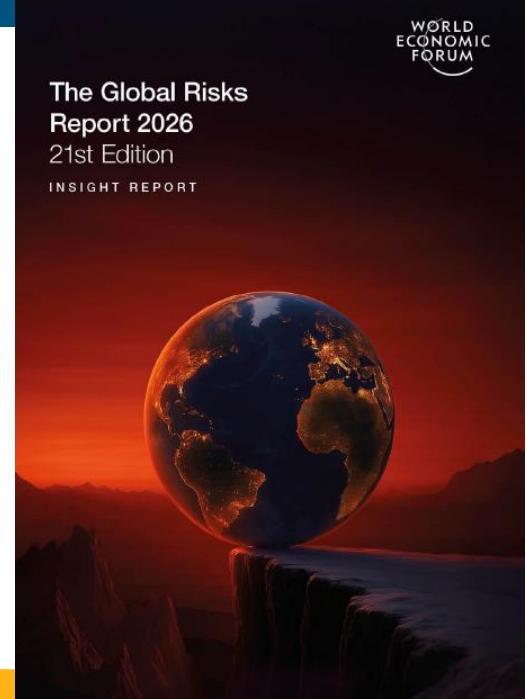
WEF Global Risks Report 2026

Published: 14 January 2026.

Key Findings:

- **Multilateralism is in retreat**
- **Economic risks are intensifying**
- **Technological risks are growing, largely unchecked**
- **Societies are on the edge - Inequality** was selected by respondents as the most interconnected global risk for a second year running, followed closely by **Economic downturn**
- **Environmental concerns are being deprioritized in the short term**
- **A new competitive order is emerging**

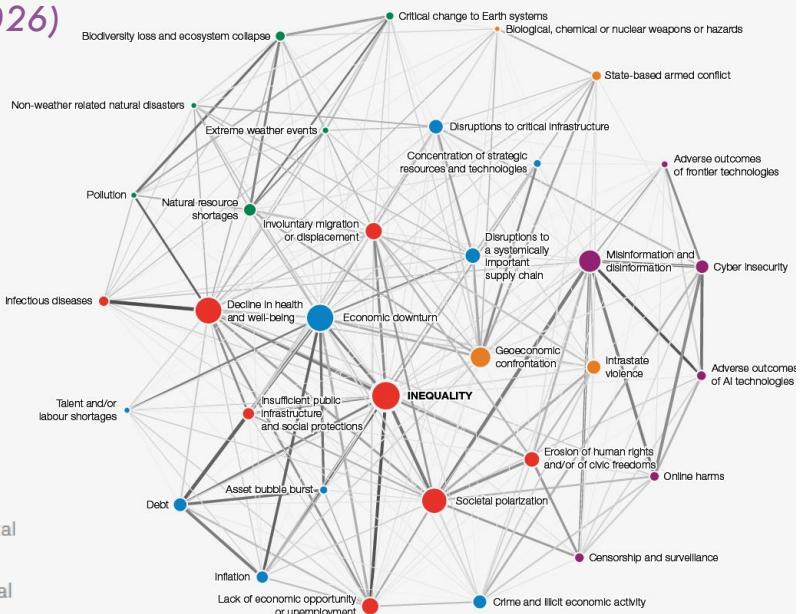
<https://www.weforum.org/publications/global-risks-report-2026/>



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(WEF Global Risks Report, 2026)

Global risks landscape: an interconnections map



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Deep Societal Innovation for Sustainability and Human Flourishing: Ideas

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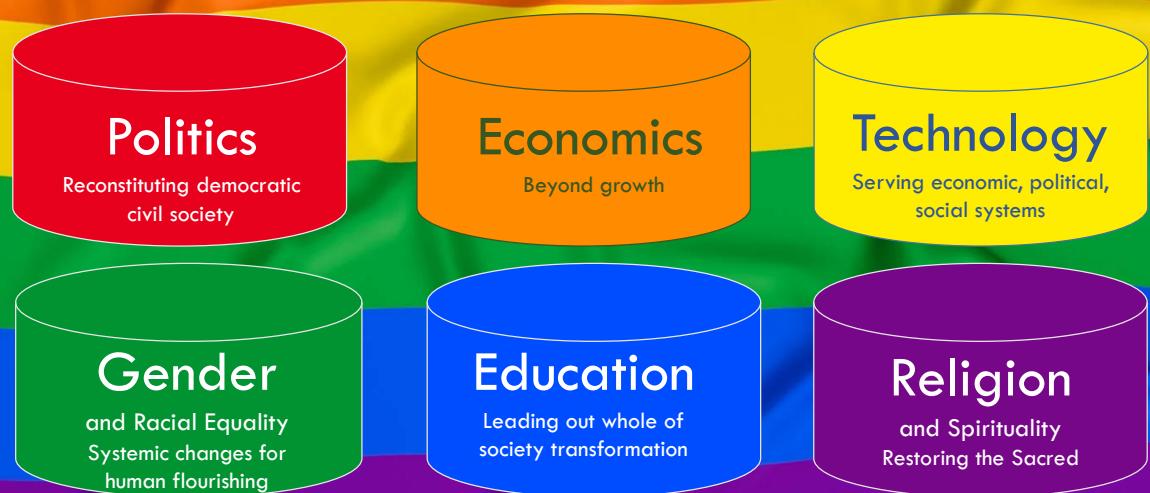
Project Objective DSIS seeks to:

develop a **methodological basis for conceptualising the deep whole of society transformation required to engage on a trajectory towards authentic sustainability and human flourishing,** which can create **narratives for deep, rapid, whole of society transformation,** and employ those narratives to **inform policy making and public discourse on climate change and sustainability.**

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Reimagining Social Institutions; Transformation across respective (interconnected) pillars



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Key DSIS Concepts:

- Contemporary Polycrisis/Metacrisis
- Deep Global Cultural & Institutional Transformation
- The Sacred Ordinary

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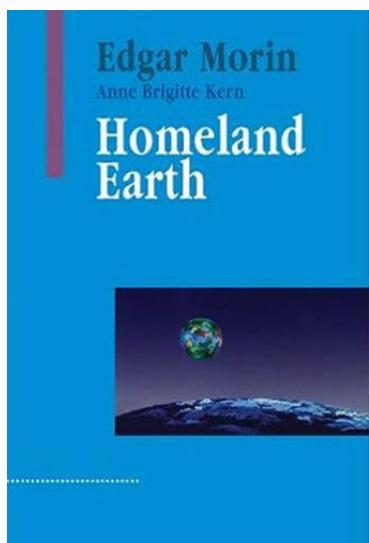


Not only are multiple crises occurring simultaneously, but each crisis amplifies the destructive effects of other crises.

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A 'Polycrisis'?..



"The Polycrisis"

*"There is no single vital problem, but **many vital problems**, and it is this **complex intersolidarity** of problems, antagonisms, crises, uncontrolled processes, and the **general crisis of the planet** that constitutes **the number one vital problem**"*

Morin and Kern (Homeland Earth, 1999, p.74)

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FINANCIAL TIMES

S COMPANIES TECH MARKETS CLIMATE OPINION LEX WORK & CAREERS LIFE & ARTS HTSI

Opinion **Global Economy**

Welcome to the world of the polycrisis

Today disparate shocks interact so that the whole is worse than the sum of the parts

ADAM TOOZE

+ Add to myFT



Financial Times,
28 October 2022

≡ Q

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This is why 'polycrisis' is a useful way of looking at the world right now

Mar 7, 2023



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Metacrisis vs. Polycrisis

Metacrisis overlaps with polycrisis in viewing collective crises through the lens of systems thinking, but differentiates itself in addressing the social dynamics and affective experience of crisis — the way these interconnecting crises feel to us, what this does to our psyches (individually and collectively), how it impacts our ability to live meaningful lives, and how all of that generates unexpected emergent properties.”

Explaining Polycrisis and Metacrisis (Jesse Damiani, 2023)

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The Metacrisis is a Crisis of Meaning



Ernesto van Peborgh

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7 min read · Aug 3, 2024

“The metacrisis is a systemic crisis that transcends the sum of its individual crises. It is not merely a polycrisis, but an emergent property that is greater than the sum of its parts. This crisis encompasses a profound crisis of purpose and meaning..”

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Metacrisis vs. Polycrisis

*“Poly might help us to stand back and see what is ‘out there’ in perspective, but **that is not enough**. Just standing back to see the big picture **risks delusion**, because it is a **partial view pretending to be whole**.*

*Meta highlights that we also need to look within ourselves to psyche and soul, and also beyond, for a **renewal in our worldview** or **cosmovision** which has a direct bearing on **prevailing ideologies** and **social imaginaries**.*

*The heart of the matter is that this deep limitation is not allayed, but compounded by ‘polycrisis’, which merely amplifies the limitations of a **crisis mentality**.*

[Jonathan Rowson \(2023\)](#)

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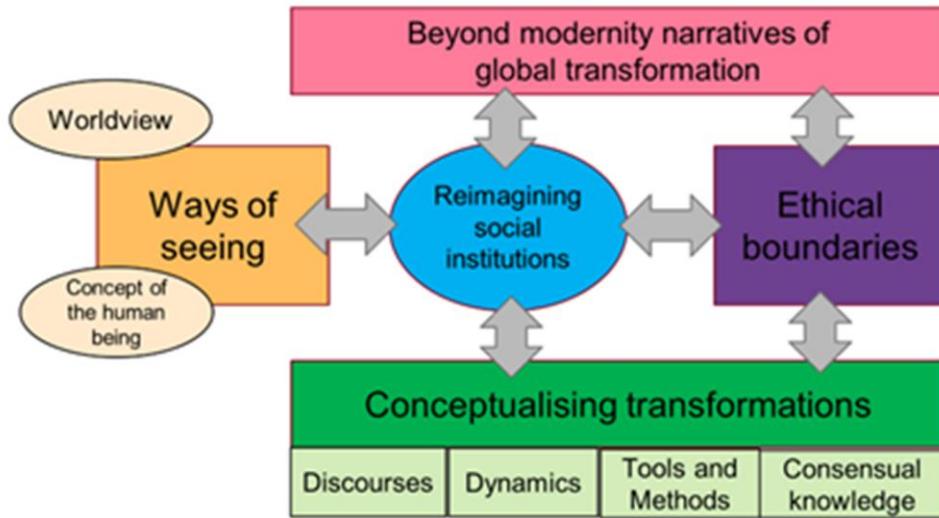
Key DSIS Concepts:

- Contemporary Polycrisis/Metacrisis
- Deep Global Cultural & Institutional Transformation
- The Sacred Ordinary

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DSIS Generative model of Transformation:



Hughes et al (2024) Environ. Res. Lett. 19 094050

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Key DSIS Concepts:

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INTERNAL EVENT

12.06.2024 – 13.06.2024

Religions in Transformation to Sustainability – the Role of the Sacred in Human Flourishing

We are excited to host this workshop at THE NEW INSTITUTE from June 12-13, 2024 and honored to have former President of Ireland Mary McAleese as the keynote speaker for the event.

Arieli Macaspac Hernández | Conceptions of Human Flourishing | Events | News

“The Sacred Ordinary are those things in the everyday that we believe are sacred to us.”



Cork Workshop: ‘Restoring the Sacred Ordinary in a Time of Polycrisis’

June 17-18, 2025, University College Cork, Ireland



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‘Restoring the Sacred Ordinary in a time of polycrisis’ 17-18 June 2025, Cork

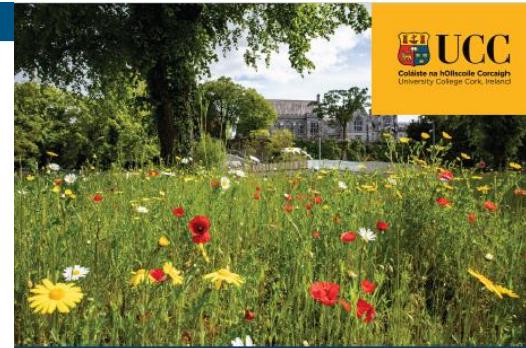


'Restoring the Sacred Ordinary in a Time of Polycrisis'

Report Key Message:

"The idea of '**the Sacred Ordinary**' – as being fundamental experiences of **relationality, joy, meaning, and beauty** which are found in **everyday experience**, and which **motivate and define us as human** – has emerged as a **key concept** in the EPA-funded DSIS project for conceptualising the **transformation** to greater sustainability and human flourishing that is **necessary to escape from the contemporary polycrisis facing humanity.**"

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**Restoring the Sacred Ordinary
in a
Time of Polycrisis**

Workshop Report

Deep Societal Innovation for Sustainability and Human Flourishing (DSIS)

June 17-18 2025, University College Cork, Ireland

epaResearch UCCFUTURES DSIS

DSIS; Resonance with Meta-Science

...some reflections

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A central aim of **meta-science** is to **challenge the dominant modern framing of science**, that is, from a **narrowly conceived scientism** which holds a material and mechanistic ontology, to a broader conception of science which incorporates and embraces the question of meaning, essentially one which seeks to 'approach human flourishing and well-being also from its non-material side of human experience and its embeddedness in nature.'

(Zwitter, 2023, p. 10)



In: Zwitter and Dome (2023) Meta-Science: Towards a Science of Meaning and Complex Solutions, U Groningen Press.

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Metacrisis and Meta-Science:

Meta-science recognises the connection between **matter** and **consciousness**, and in this way identifies the current series of interlinked crises, as at its core a 'contemporary crisis of meaning experienced both collectively as well as individually' (Zwitter, 2023, p.36).

In addressing '**the crisis of meaning**' (Zwitter, 2023, p.18), which, building on Morin's term '**polycrisis**' (Morin and Kern, 1999), has been labelled the '**metacrisis**' (van Peborgh, 2024), we feel it is essential to adopt **complexity** and **transdisciplinary** approaches which **go beyond** and **transcend neo-positivist reductionism**, which **bureaucratically** seek to **capture meaning** by reducing it to some **measurable quantity**.

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Meta-science aims to transcend this dominant though partial framing to one which is inclusive of the diverse realities and *relationalities* of human experience and their *embeddedness* in **Nature**.

Such a holistic perspective reintroduces concepts such as *spirit*, *transcendence*, *meaning*, *metaphysics* and *religion*, which along with science (and all 'in a wider sense') are required to achieve **authentic flourishing** (Zwitter and Dome, 2023, p.246), something an exclusive narrow '*scientism*' and its associated evaluative methodologies cannot achieve.

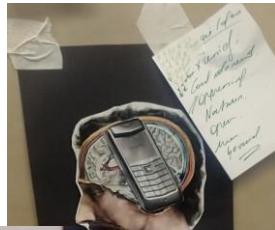
Part of a bigger picture..

(larger frame)
is required for
societal
Metacrisis

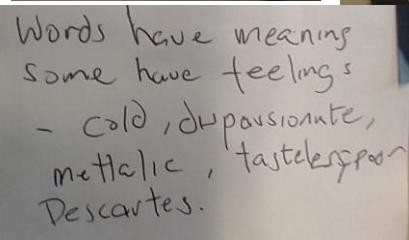
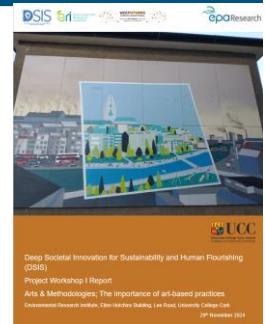


Truth?

Workshop developed by Bob Grumiau with Jennifer Ahern asked:
“What is the significance of an inexact and human truth for the natural and social sciences?”



..participatory elements; somatic exercise, poetry workshop, collage exercise, final reflective session.



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Framing is crucial for our understanding of Truth & Reality:

Different perspective from different **frames** may yield:

Different truths

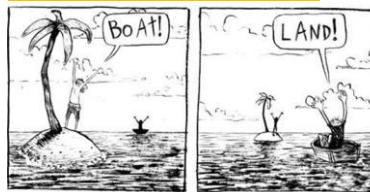


Single View

Multi-View



Partial truths

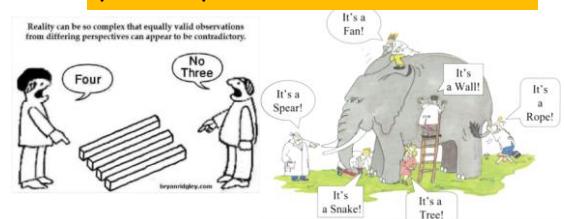


Half truths



Delusional perceptions of reality (untruths)

Reality can be so complex that equally valid observations from differing perspectives can appear to be contradictory.

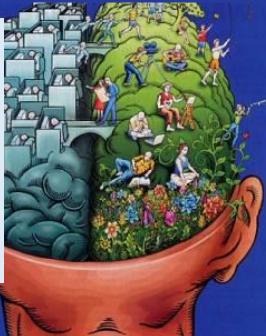


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Truth?

Seeks:
Control and manipulation
 via narrow focus
 from decontextualised
 'value free'
 'view from nowhere'
 (subject to hubristic denial
 'hallucinations'/lies)



THE MATTER WITH THINGS

*Our Brains, Our Delusions,
 and the Unmaking of the World*
IAN MCGILCHRIST
 · VOLUME I ·

"Scientific processes **cannot be free from assumptions or values; ..its advance requires imagination, as well as serendipity – not merely the stolid adherence to a procedure.**

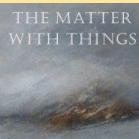
Ian McGilchrist, *The Matter with Things*, v.1, p.429-30 (2021)

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Left Hemisphere

Truth as narrow/unique:
 'objective'
 decontextualized static
 'facts' (/‘no point of
 view’),
 obtained via
 (reductionist) 'Science'
 alone ('Scientism')



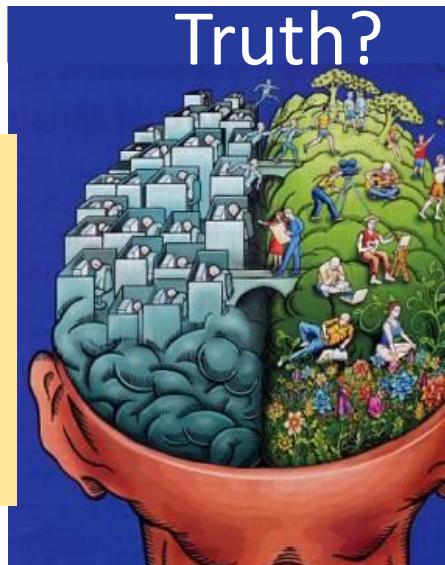
Ian McGilchrist, *The Matter with Things*, v.1, p.384 (2021)

Right Hemisphere

Truth as:
 ongoing evolving **process**,
 seeking **meaning** through
 (subject-object) **relationship**,
 obtained via **contextualised**:

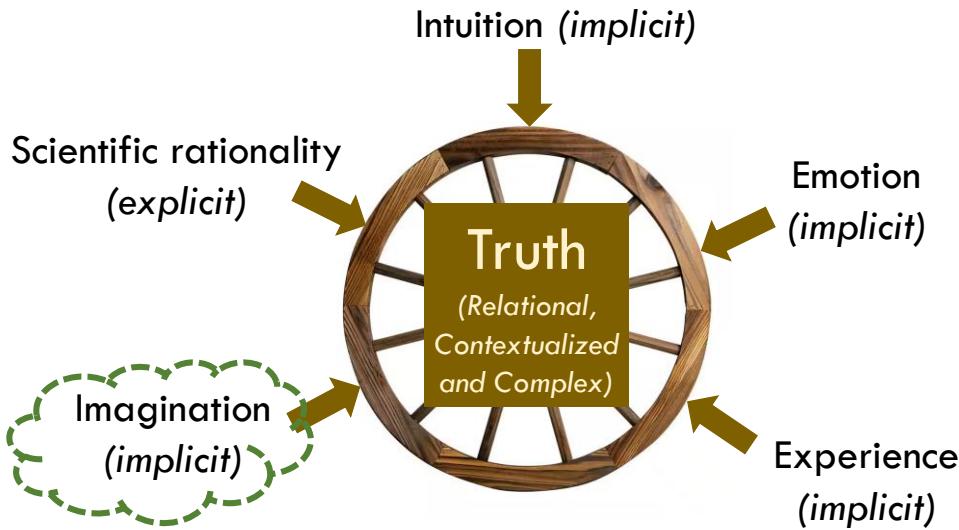
- **Scientific** rationality, also:
- **Intuition** (*implicit*),
- **Emotion** (*implicit*)
- **Imagination** (*implicit*) &
- **Experience** (*implicit*)

 e.g. taste, beauty, goodness, love.
 Truth **not** a free-for-all, individual whim,
 but uncertain because it is full, complex.

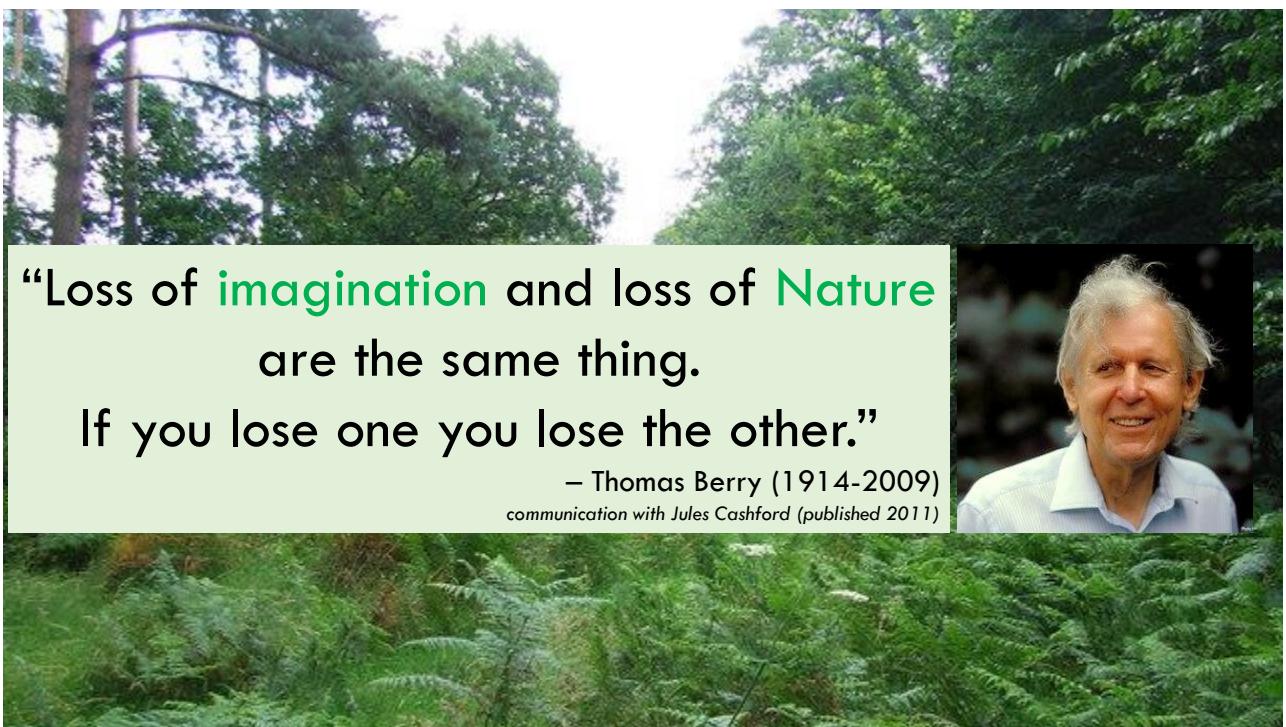


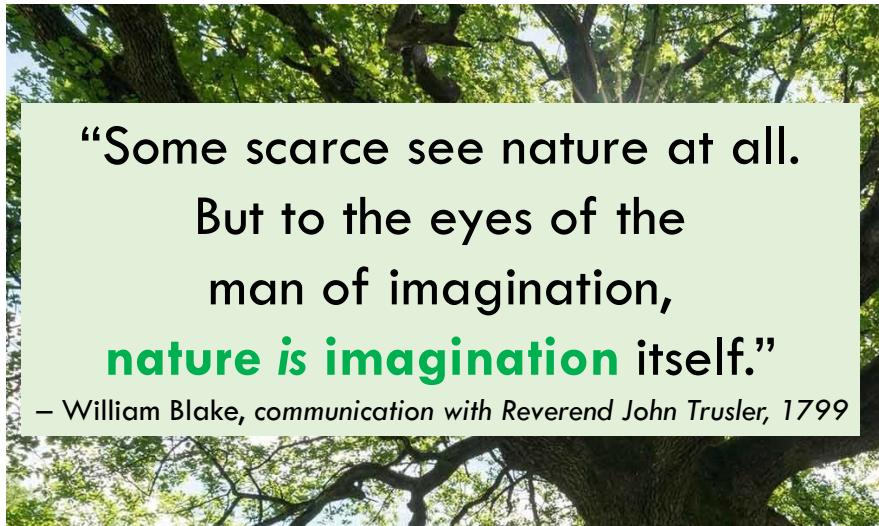
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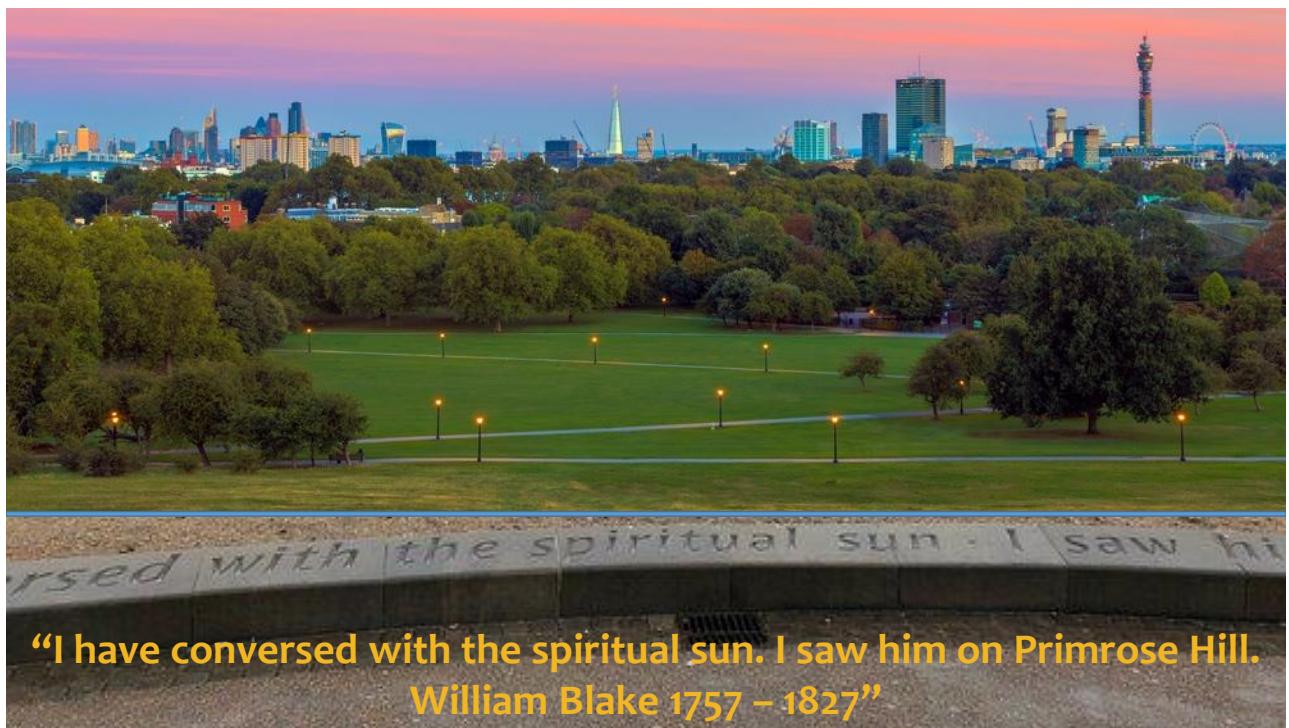


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Blake here sees '**man of imagination**' as not **separate** from nature, but actually, as someone who recognizes nature (and the cosmos) as where imagination is born and finds **creative** (and created) expression, and is thus a manifestation of endless **creative** potential, **awe** and **inspiration**.



- As humans (/social beings),
- we seek out **Connection** (over **selfish control**). 
- We relate through **Communication**, via **Stories**.
- We tell **stories** not just through explicit denotative language and logic/mathematics (**left hemisphere**), but..
- ..we Communicate and Connect much **more powerfully** and at **a far deeper level** though (**right hemisphere**) implicit:
 - **art** (music, poetry, dance, comedy)
 - **religion** (including spiritual, mystic, transcendent experience) and
 - **metaphorical language and myth**.
- The latter '**moves**' us (**connects; communicates**) in ways the former cannot (rationally) comprehend, often via **melancholy** and grounded **hope** (**over always-on optimism**).

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John Ehrenfeld, *Flourishing* (2013)

*"In the end, we will know the world and act authentically within it only if we adopt a new and more nuanced way of relating to it: **complexity**, which blends **objective** elements of the **scientific method** with the **subjective** elements of **pragmatic, spiritual, and loving Being**. **Spirituality** leads to practices in daily living that reflect a sense of **connectedness** to the **world**."*

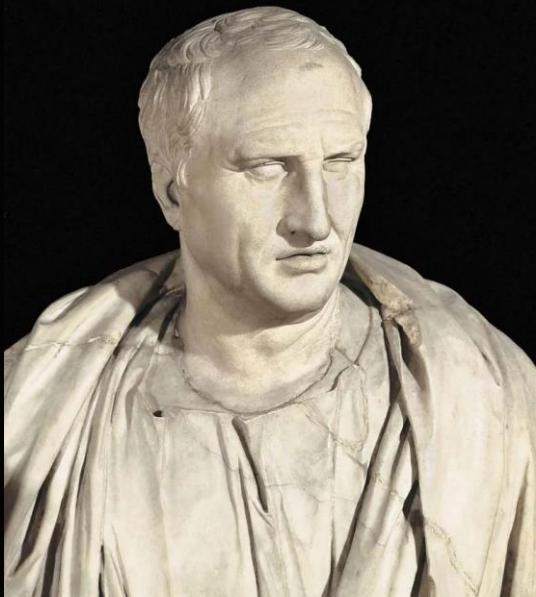
FLOURISHING

A Frank Conversation About Sustainability



John R. Ehrenfeld and Andrew J. Hoffman

*"OMNIA VIVVNT,
OMNIA INTER SE CONEXA"*



*"EVERYTHING IS ALIVE;
EVERYTHING IS
INTERCONNECTED."*

- Cicero -

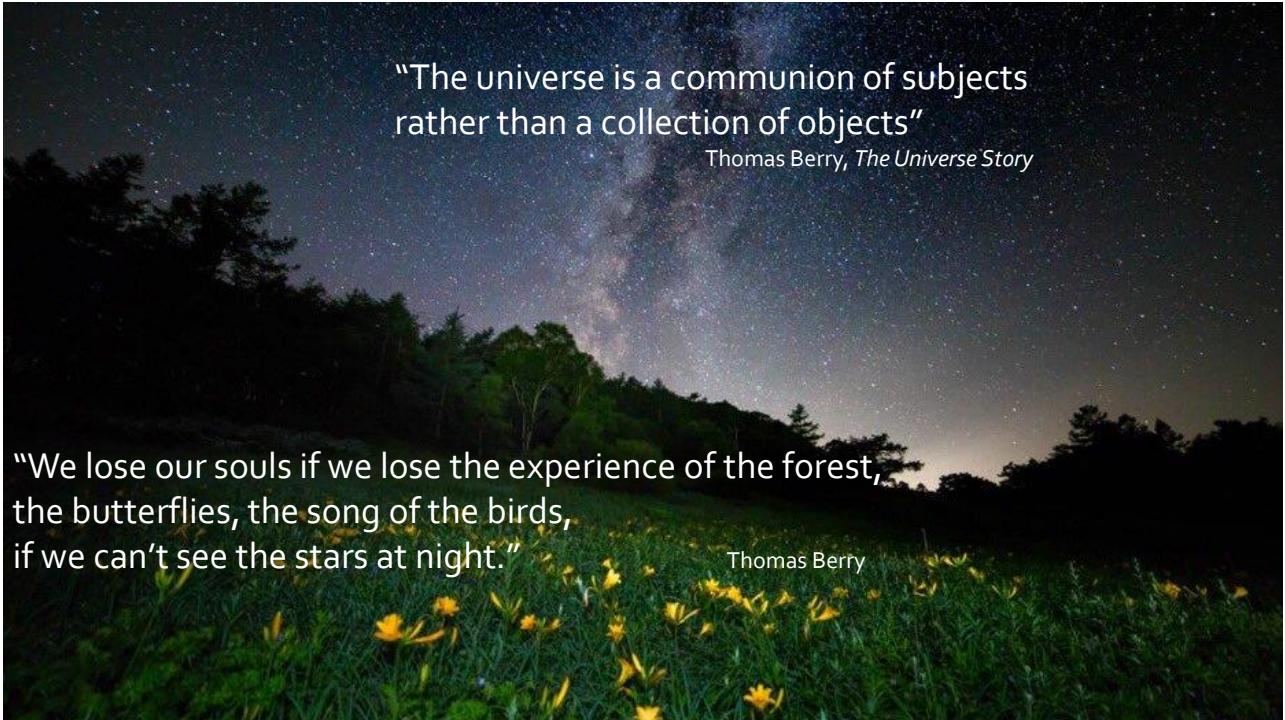


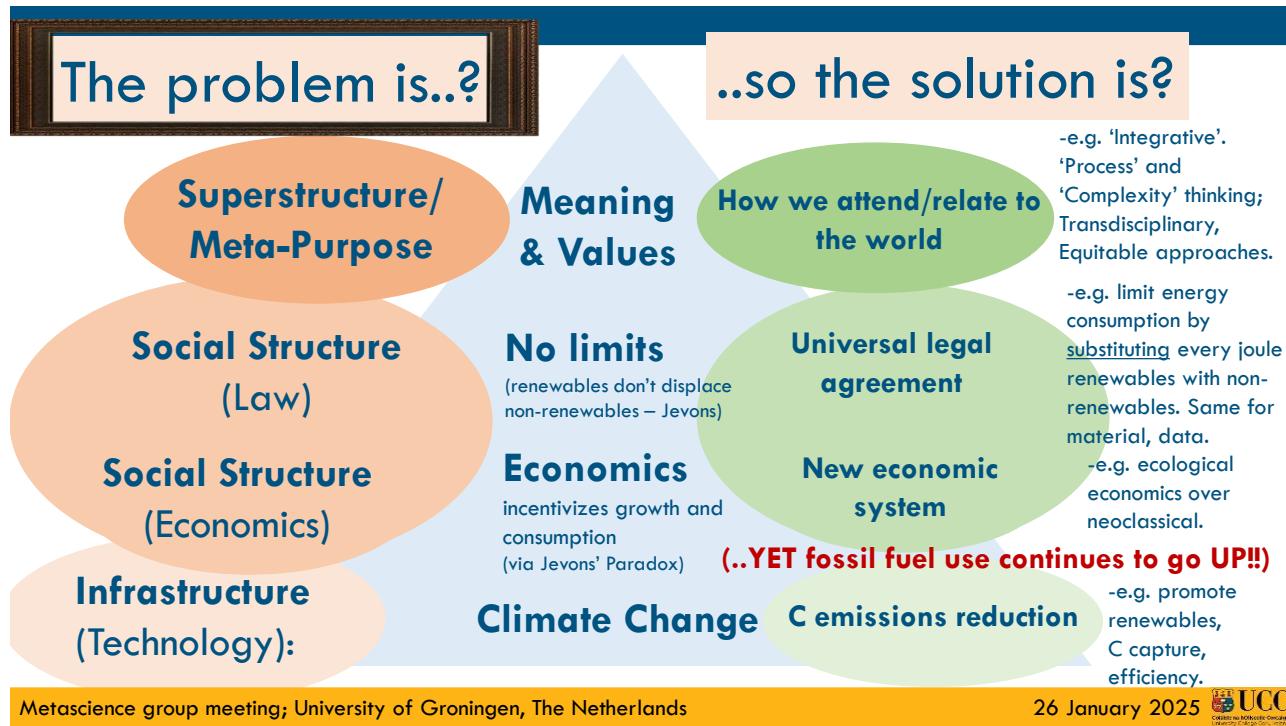
*"The universe is a communion of subjects
rather than a collection of objects"*

Thomas Berry, *The Universe Story*

*"We lose our souls if we lose the experience of the forest,
the butterflies, the song of the birds,
if we can't see the stars at night."*

Thomas Berry





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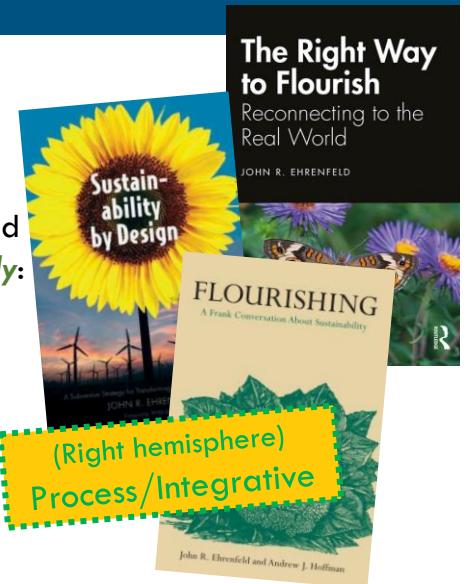
'Sustainability as Flourishing'

'Tao of Sustainability' (John Ehrenfeld, 2008): Qualitative property of **'flourishing'**: can only be achieved when critical domains of **care** are addressed **simultaneously**:

- **care for oneself** (human domain)
- **care for others** (ethical domain)
- **care for the broader world** (natural domain)

In 2013 Ehrenfeld suggested a 4th domain;

- **care for the non-material** aspects of reality (numinous/spiritual/transcendental/connective)



NB: No economic domain!

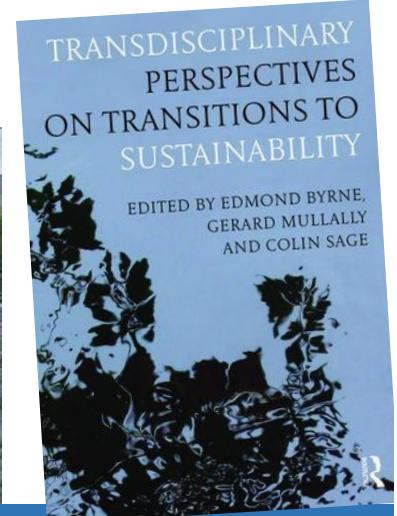
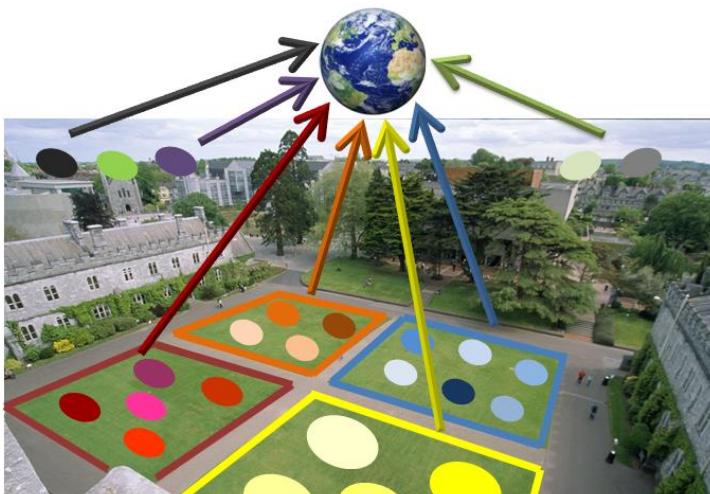
Metascience group meeting; University of Groningen, The Netherlands

26 January 2025 

Transdisciplinary Approaches

Metascience group meeting; University of Groningen, The Netherlands

26 January 2025 



“Amid the ‘**silo-ised**’ constraints of the university (or should that be ‘multiversity’?), the whole was not greater than the sum of the parts. More broadly, within a world of increasing ecological degradation, social upheaval and economic inequality we were making **relatively feeble attempts to address the ‘grand challenges’ around (un)sustainability.**”

Byrne, E. et al. (2017). Transdisciplinary within the university.
In: Byrne, Mullally & Sage (eds.), Routledge.

Byrne et al. (2017)



Los Cuatro Postes, Ávila, Spain

Transdisciplinarity;
seeking *emergent* knowledge,
on strong *disciplinary* pillars,
while *transcending* them

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'An Elephant in the Room!'

Prof. Kristina Edström

Professor in Engineering Education Development, KTH

"There is a weakness;
a lack of interest in other
disciplines/scholars.
...It's a sign of our maturity that we
can learn from other disciplines."

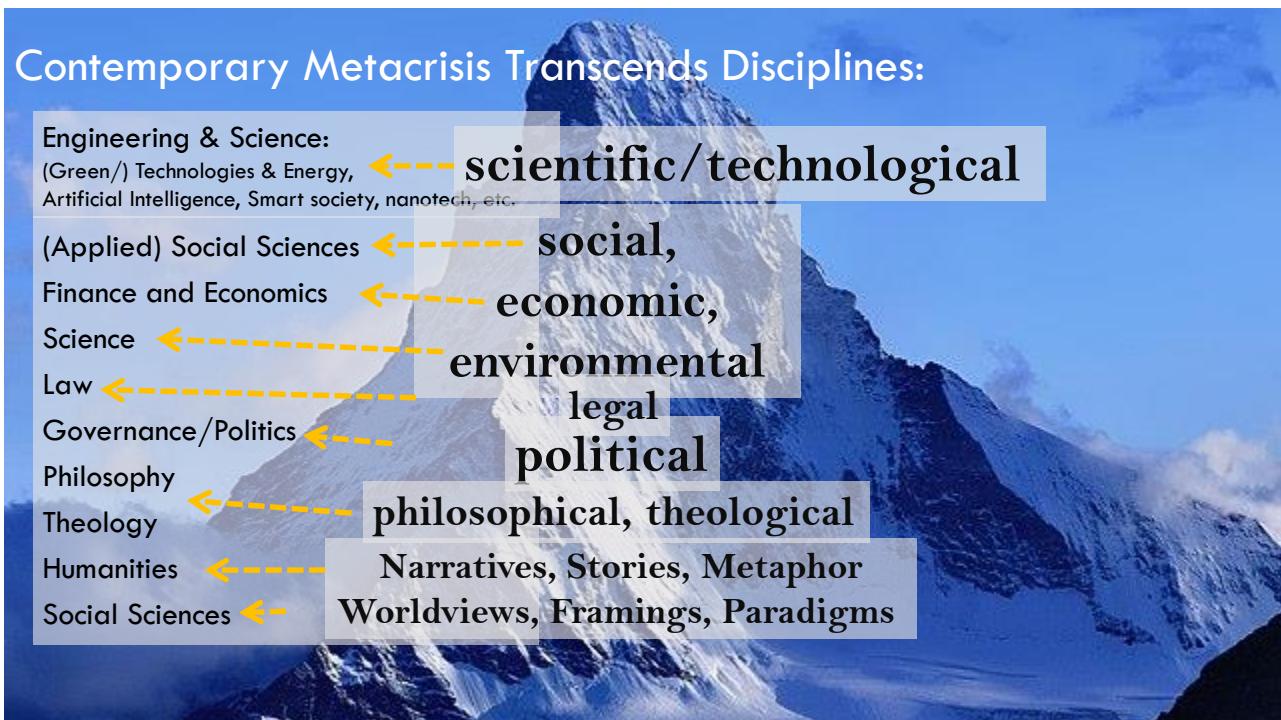
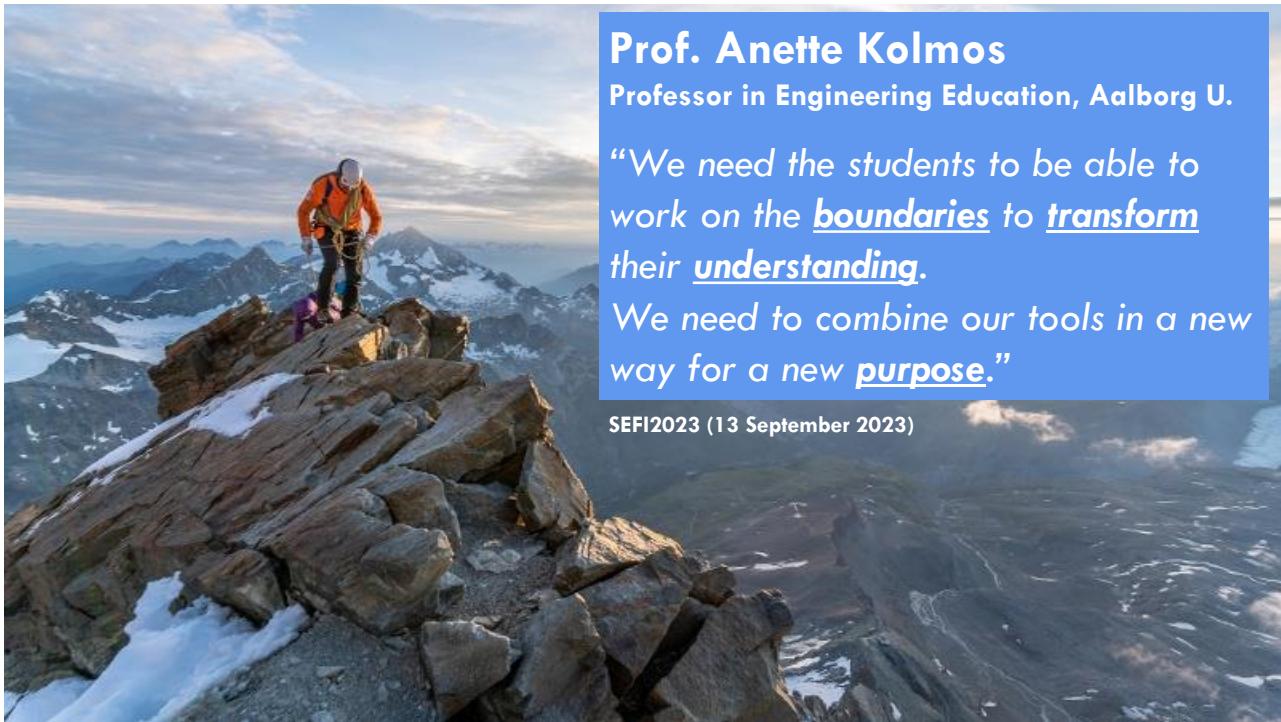
SEFI2023 (11 September 2023)

Credit: Walmart



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Meta-Science and Deep Societal Transformation

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 UCC (DSIS) colleagues Maggie O'Neill, Gerard Mullally and Simone O'Rourke
 Assoc. VP Sustainability UCC Brian Ó Gallachóir,
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