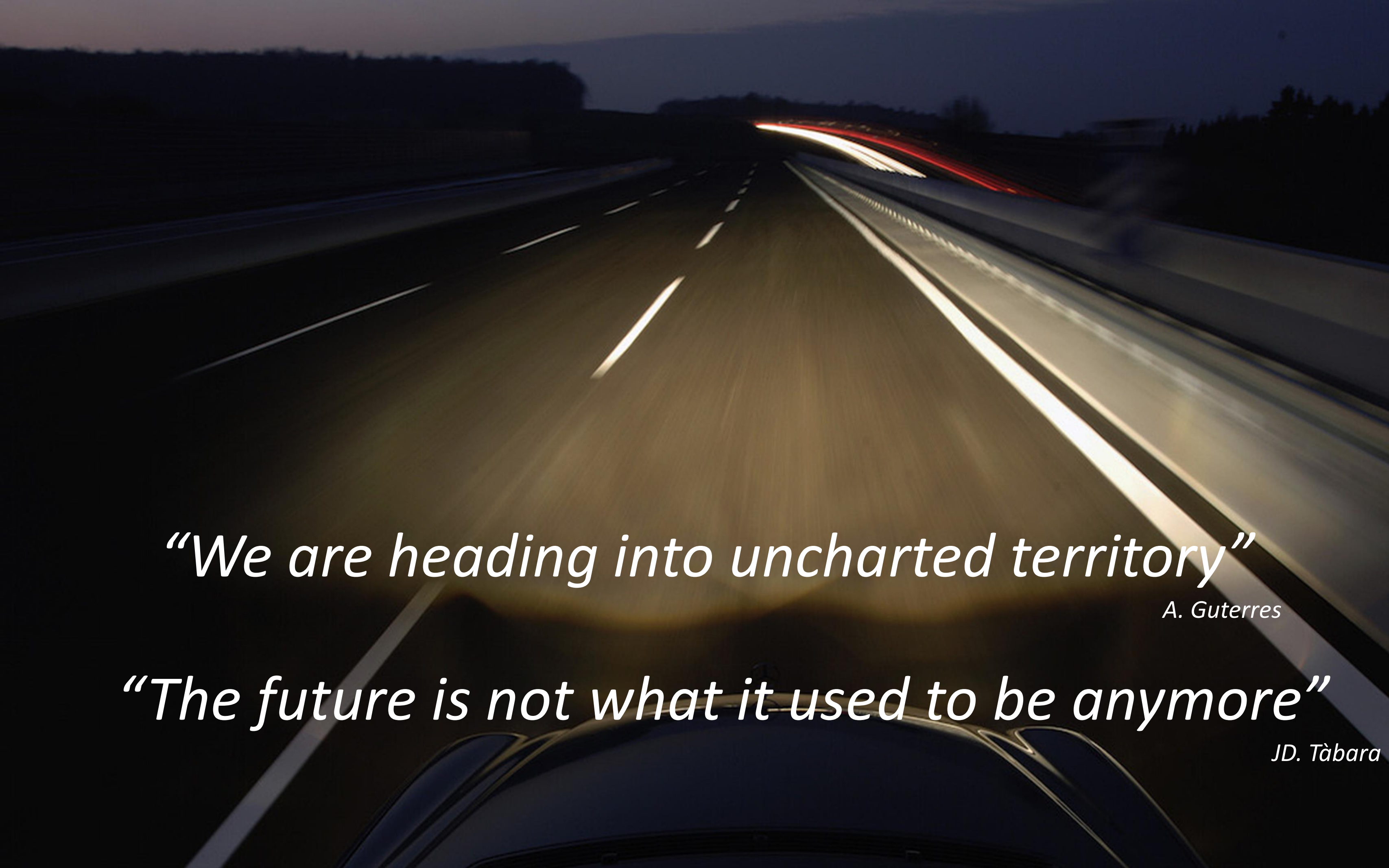


Technology at the service of systemic transformation

Anna Palli





“We are heading into uncharted territory”

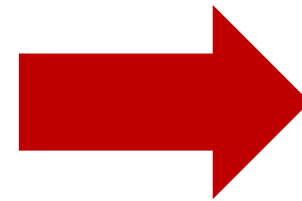
A. Guterres

“The future is not what it used to be anymore”

JD. Tàbara

A NEW KIND OF PROBLEMS

COMPLICATED +
LINEAR change



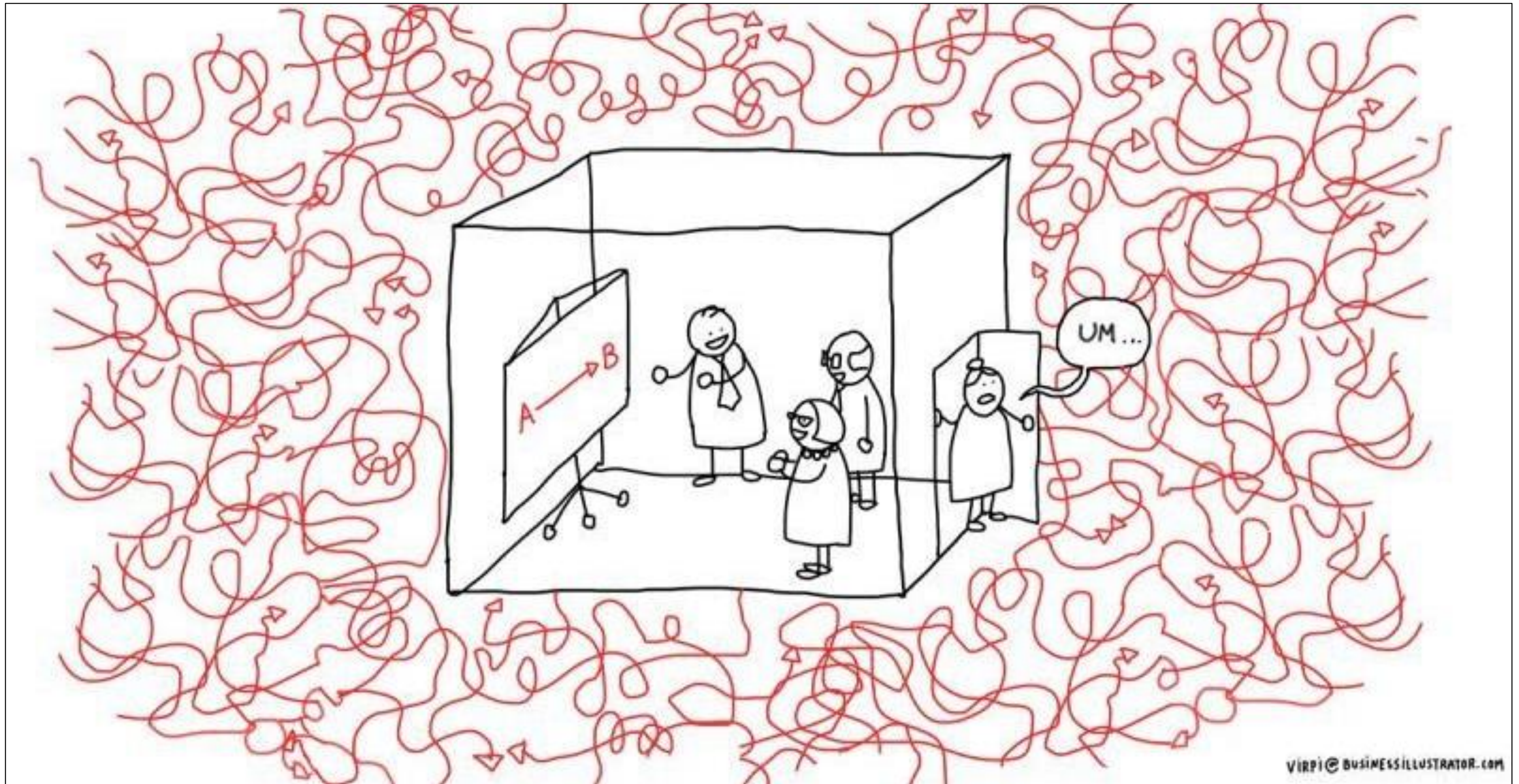
COMPLEX +
EXPONENCIAL change

“clock problems”

“cloud problems”

ANALISIS > SINTESIS

INTERCONNECTED / **COMPLEX** / INTERDEPENDENT



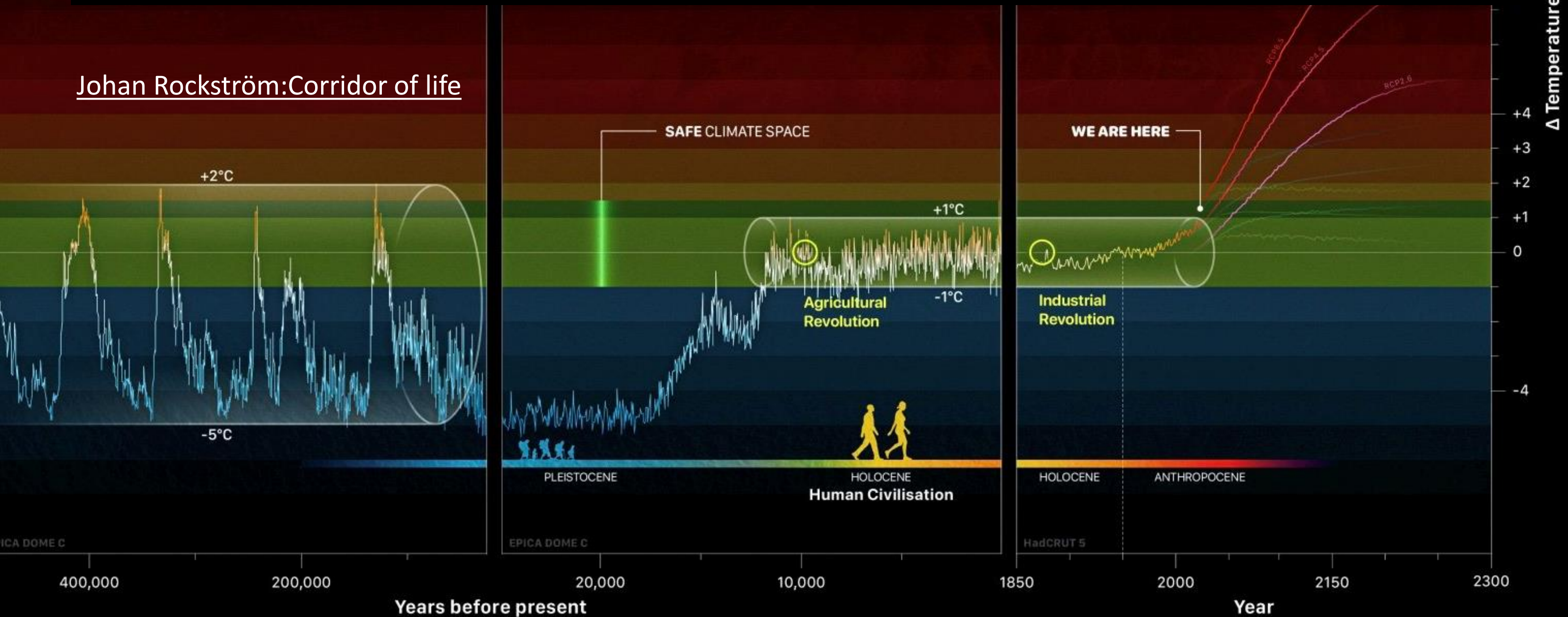
The present is not what it used to be either

Holocene

Antropocene

For the last **10.000** years the average global temperature in the Holocene remained within a narrow range of plus or minus 1°C

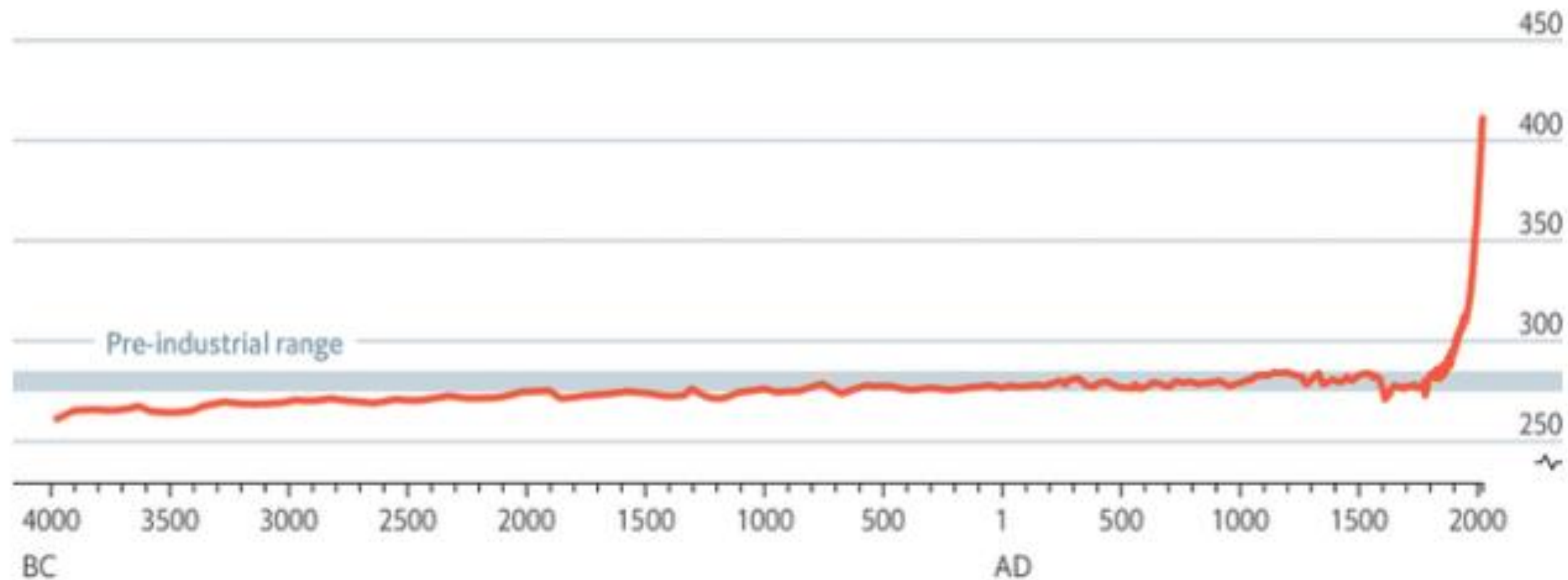
Johan Rockström:Corridor of life



Anthropocene

The great right angle

Global atmospheric CO₂ concentration, parts per million



Sources: Our World in Data; NOAA

The Economist

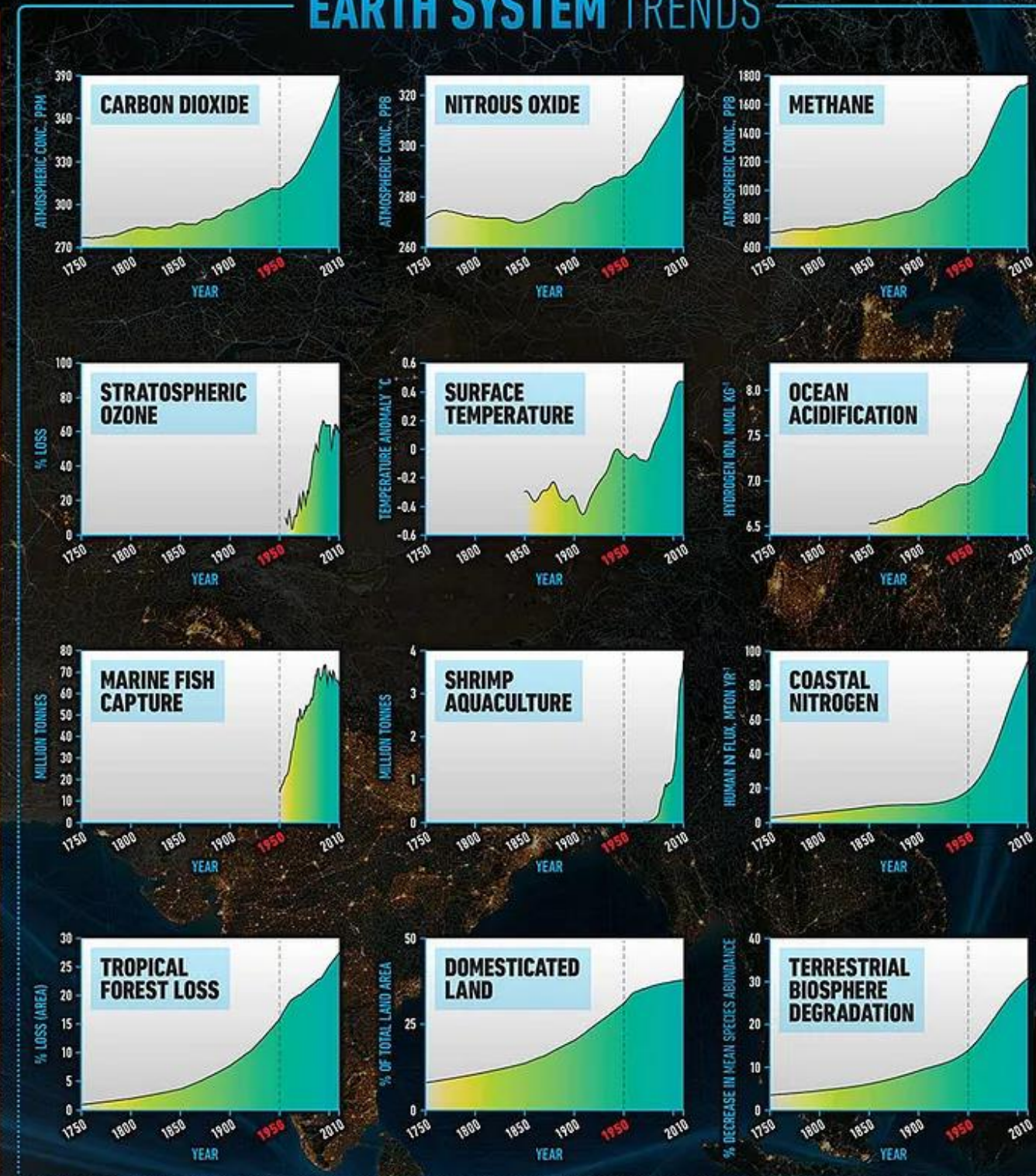
**When humans alter literally every aspect of the biosphere
(2-3°C likely expected)**

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*.

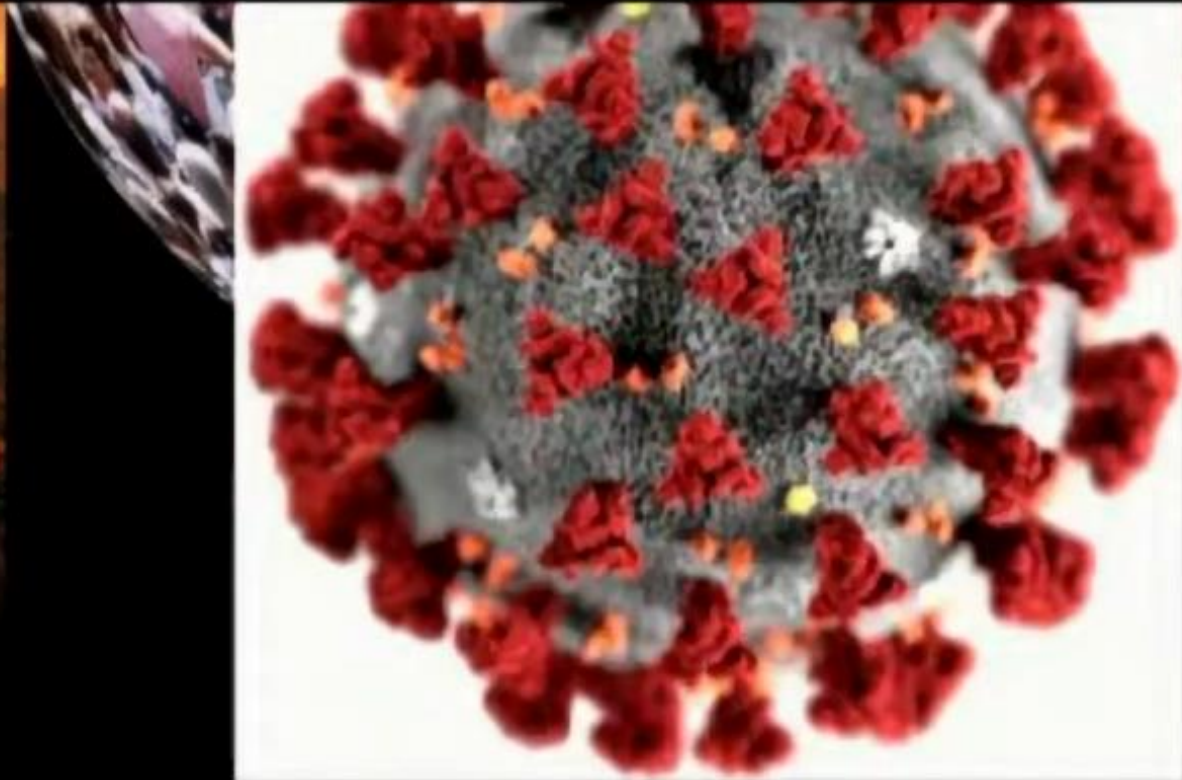
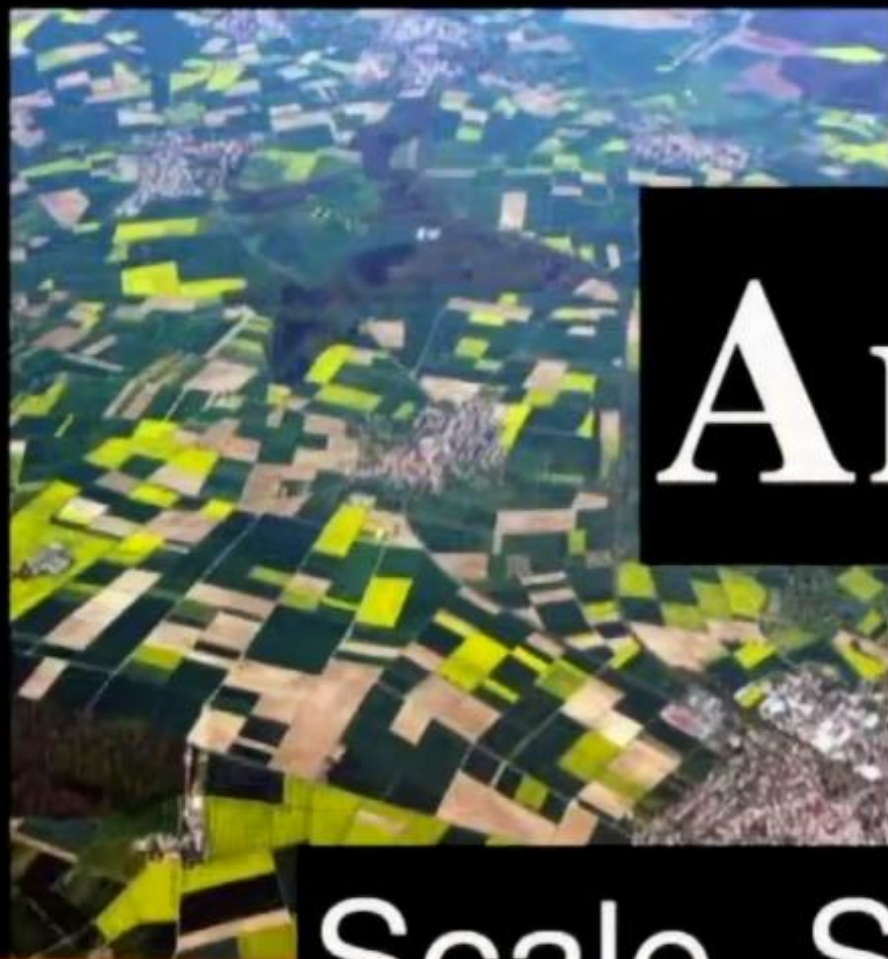
MAP & DESIGN: Félix Pharand-Deschênes / Globaia

<http://www.igbp.net/globalchange/greatacceleration.4.1b8ae20512db692f2a680001630.html>

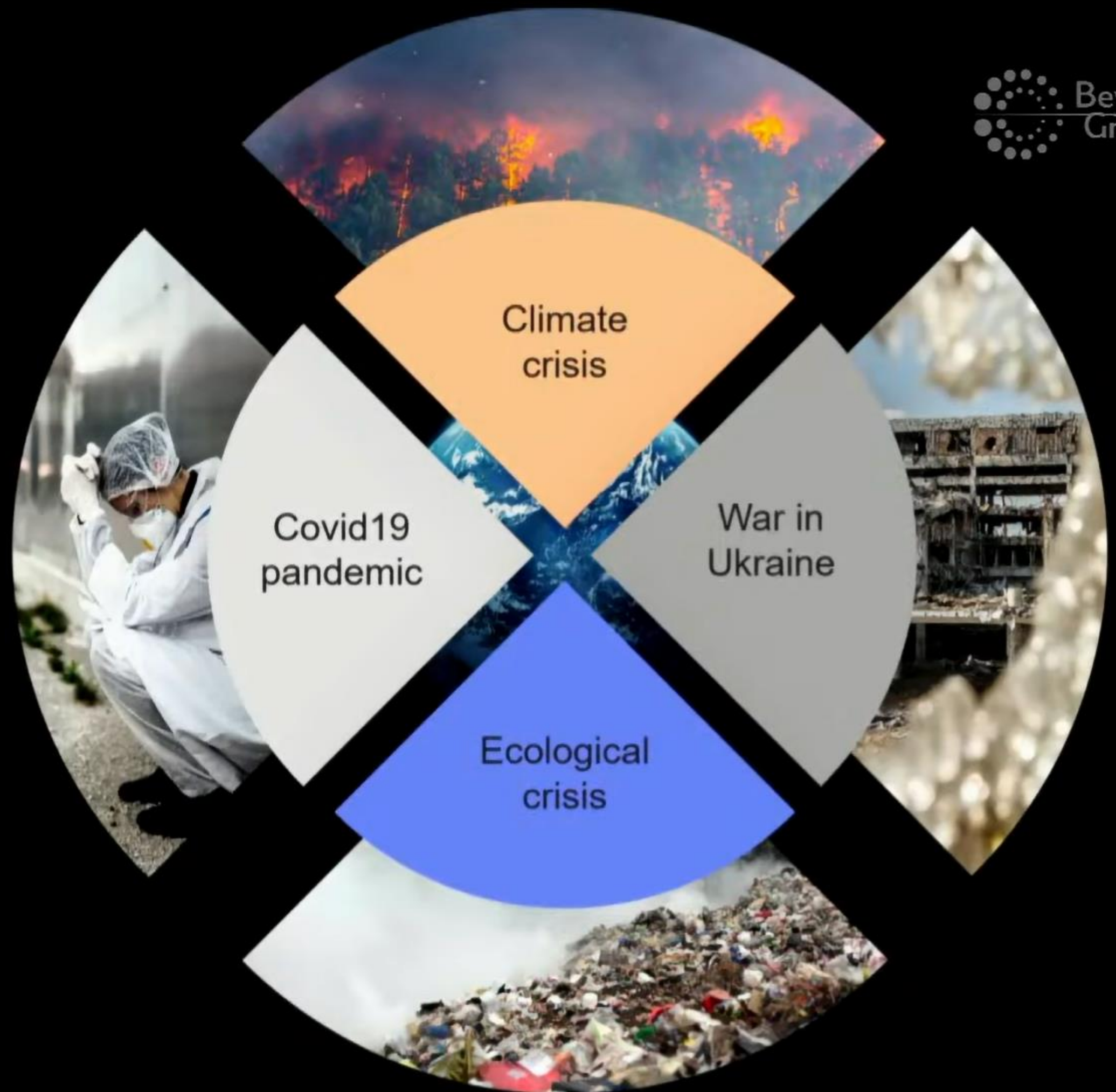
A biosphere shaped by humans

Anthropocene

Scale, Speed, Inter-connections



Four interconnected global crises

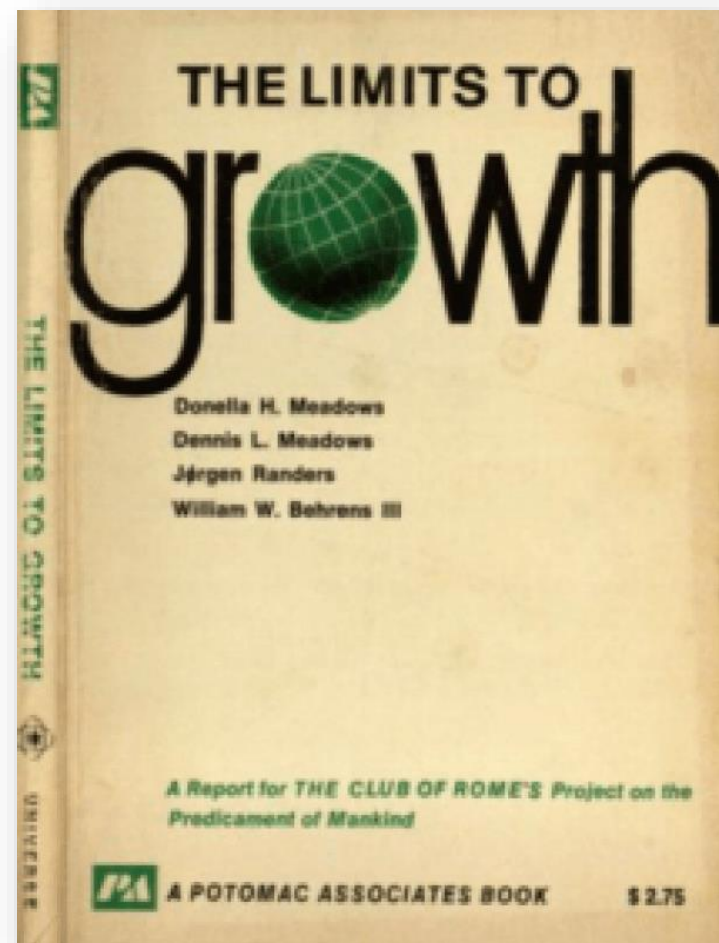


LIMITS

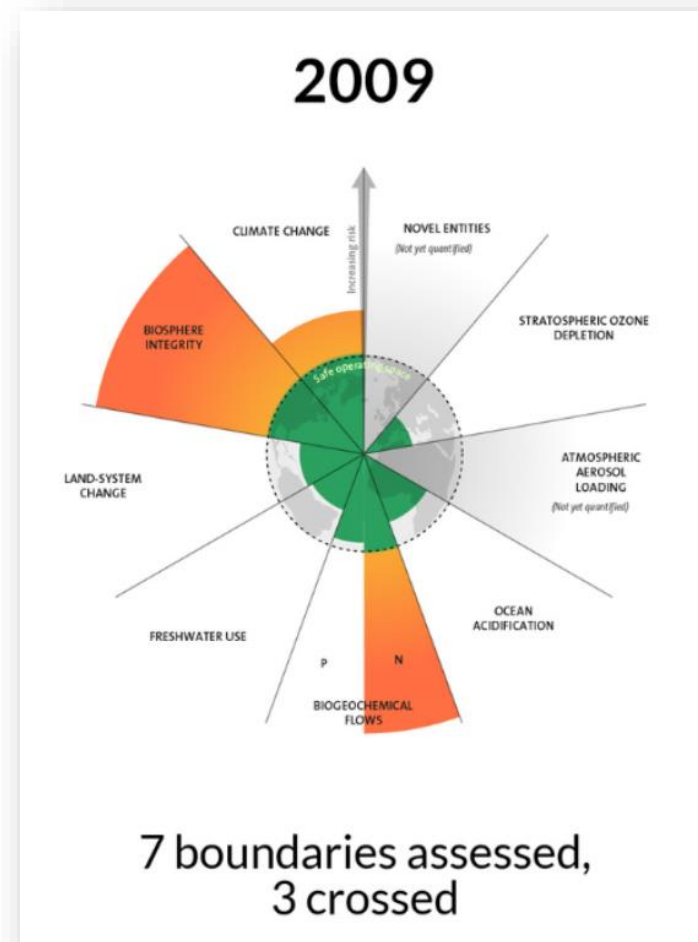
BIOPHYSICAL

SOLUCIONISM/MENTAL MODEL

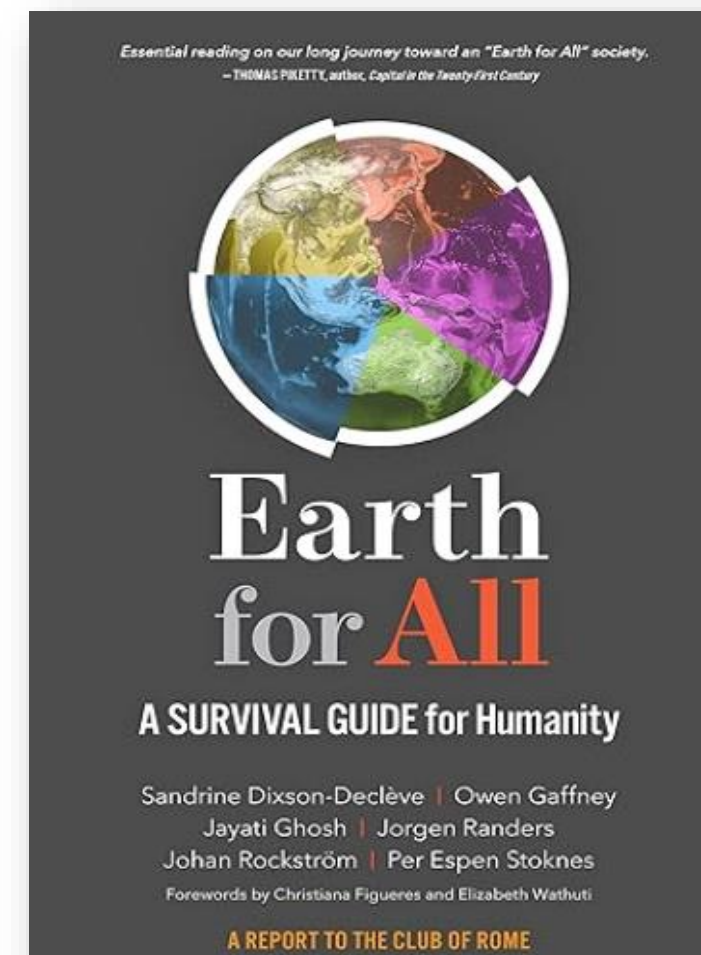
ECONOMIC MODEL



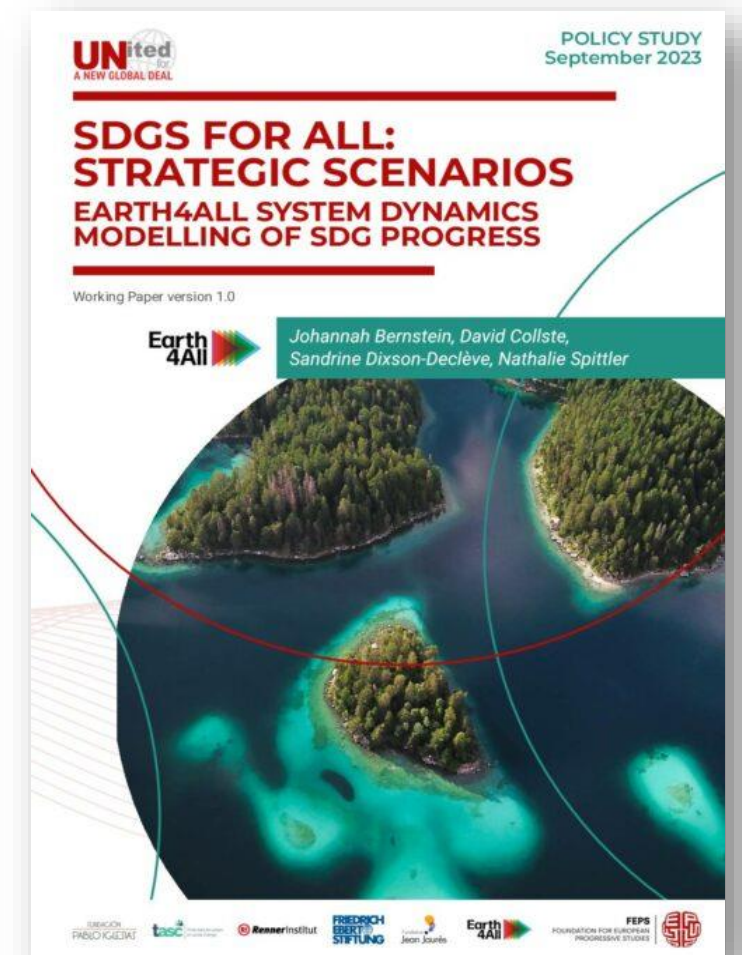
1972



2009



2022



2023

Planetary Boundaries guide humanity's future on Earth

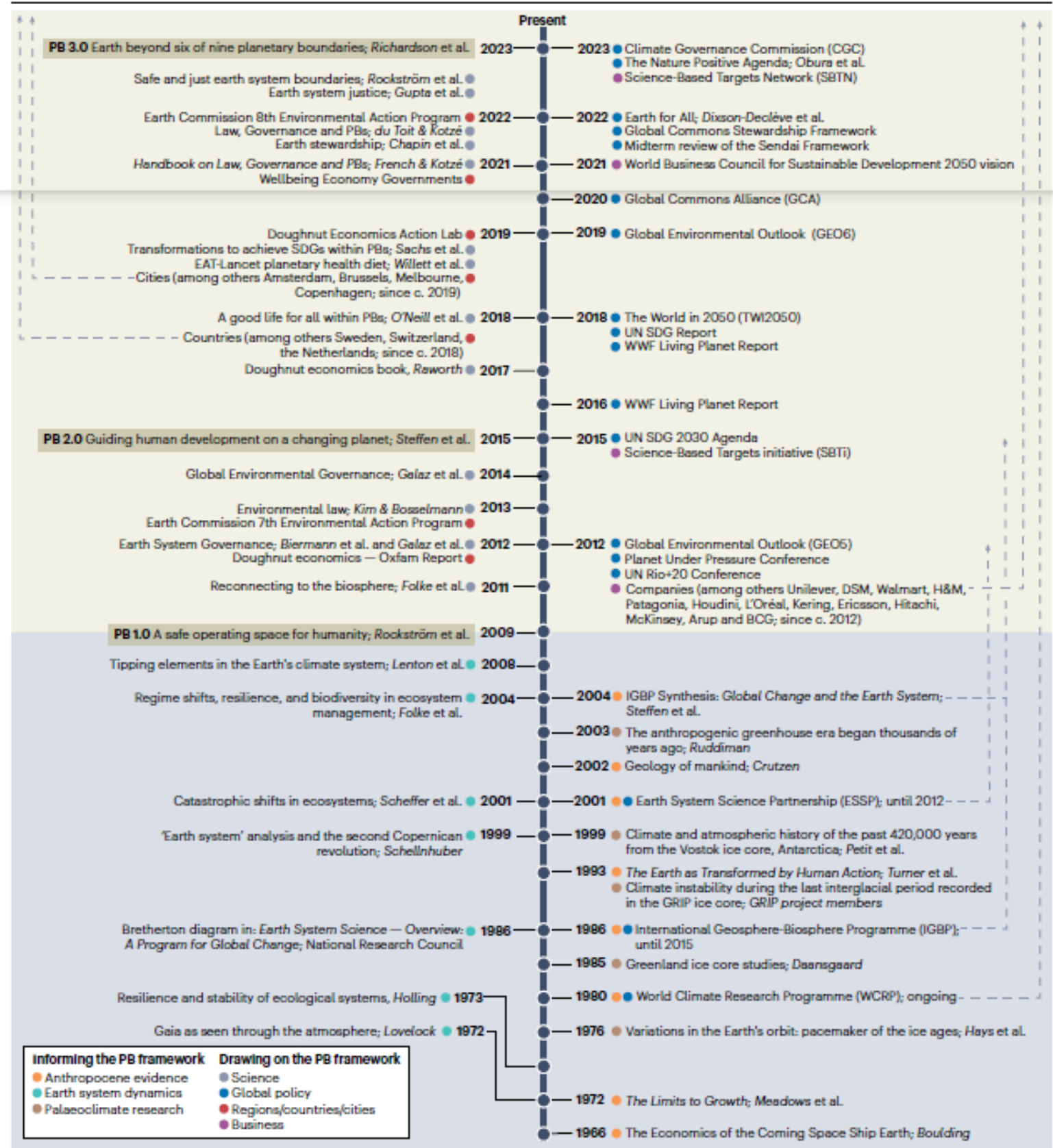
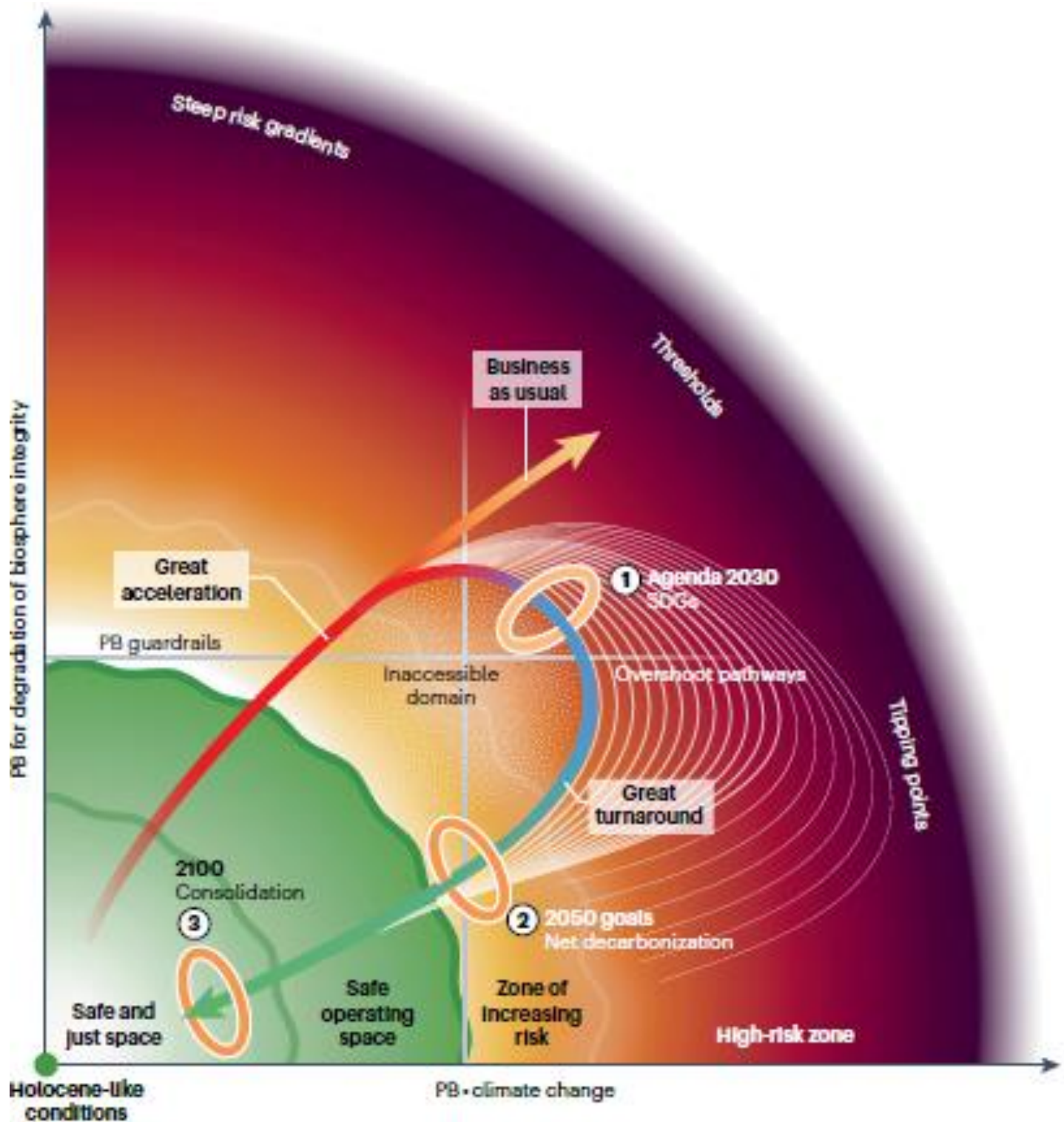
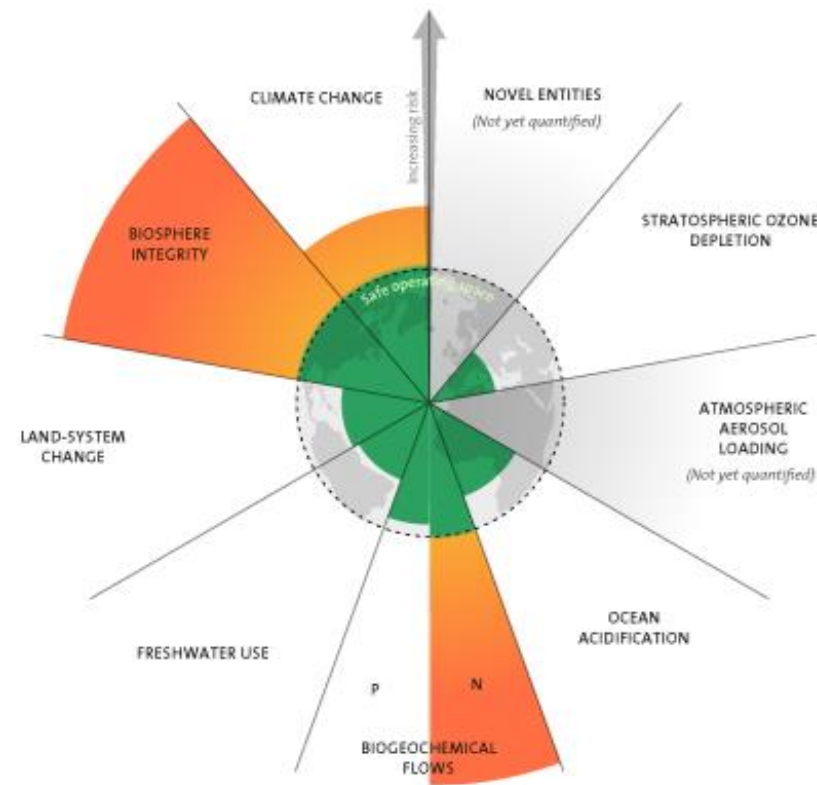


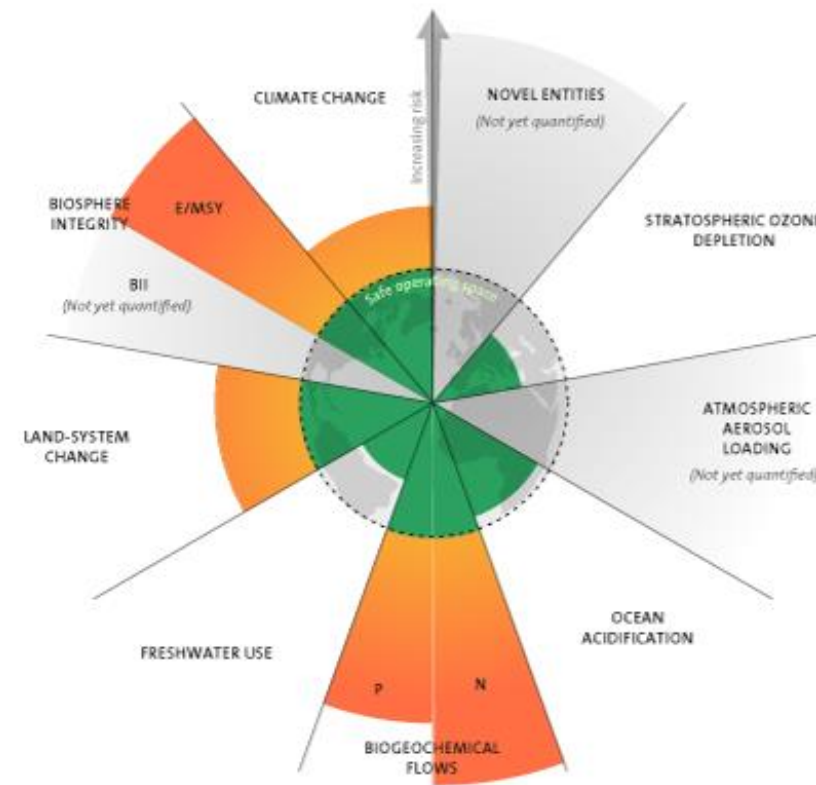
Fig. 1 | Origins, evolution and societal uptake of the Planetary Boundary framework. Key features informing (bottom) and drawing on (top) the Planetary Boundary (PB) framework, including science (grey), global policy (blue), regions/countries/cities (red) business (purple), Anthropocene evidence (orange), Earth system dynamics (teal) and palaeoclimate research (brown). PB science is not only informed by multiple strands of scientific enquiry but has influenced academia and policy across disciplines and sectors. SDG, Sustainable Development Goals.

2009



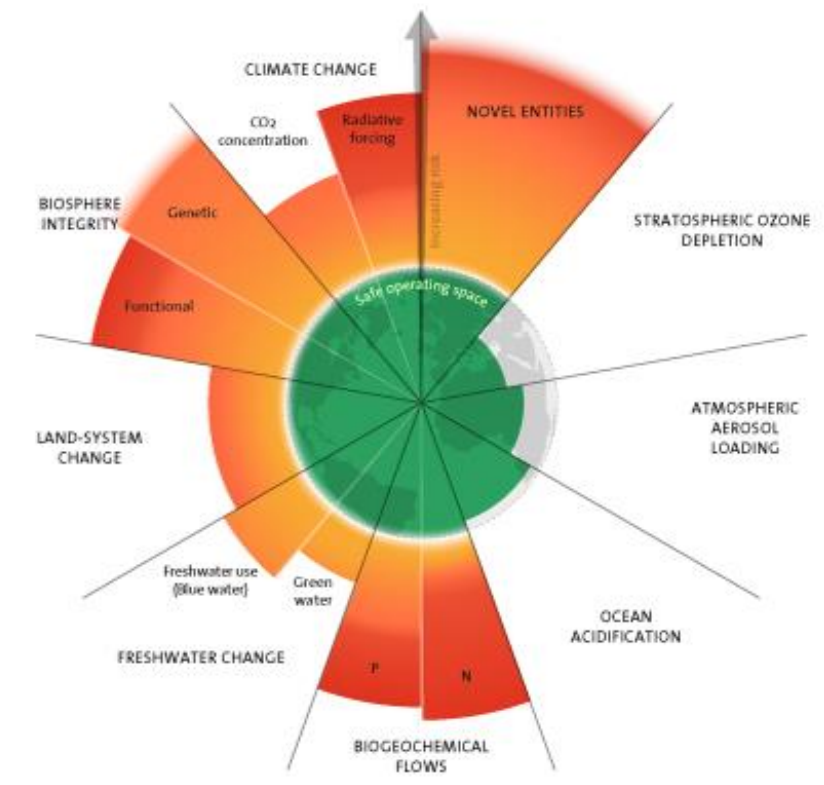
3 boundaries crossed

2015



4 boundaries crossed

2023



6 boundaries crossed

FUNCTIONALITY
STABILITY
RESILIENCE

PLANETARY BOUNDARIES

Biophysical systems that regulate the well-being of people and life support systems on the planet and that determine a **safe operating space for humanity**

<https://www.science.org/doi/pdf/10.1126/sciadv.adh2458>
Planetary Boundaries guide humanity's future on Earth

Planetary Health Check 2025

A Scientific Assessment of the State of the Planet
Executive Summary



Executive Summary

The Planetary Health Check (PHC) report provides an assessment of the state of our planet. It is based on the Planetary Boundaries (PBs) – the nine processes that are known to regulate the stability, resilience (ability to absorb disruptions) and life-support functions of our planet. Each of these processes, such as Climate Change or Ocean Acidification, is

currently quantified by one or two control variables. The 2025 PHC report concludes that **seven out of nine Planetary Boundaries have been breached**, with all of those seven showing trends of increasing pressure – suggesting further deterioration and destabilization of planetary health in the near future (Fig. ES 1).

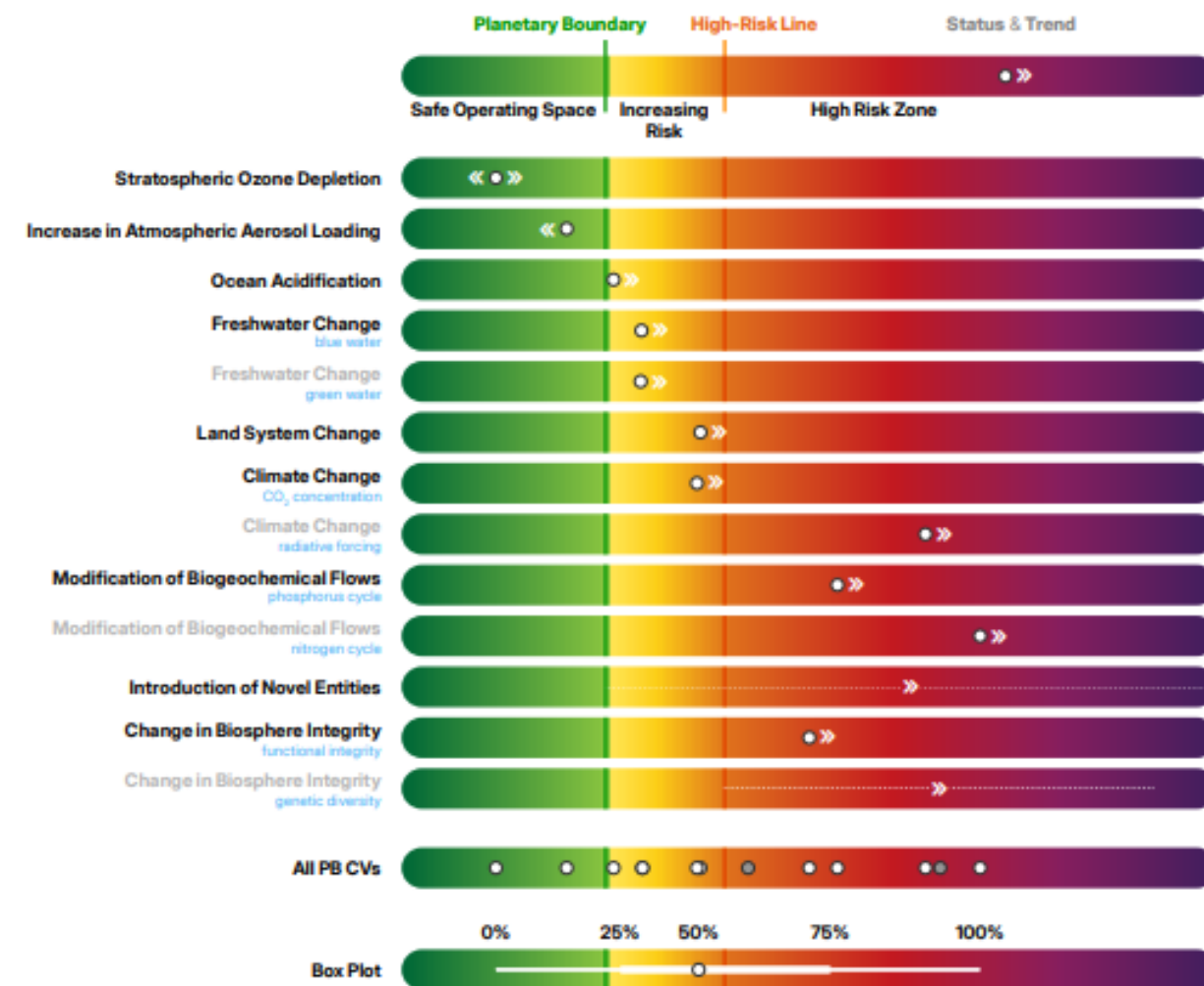
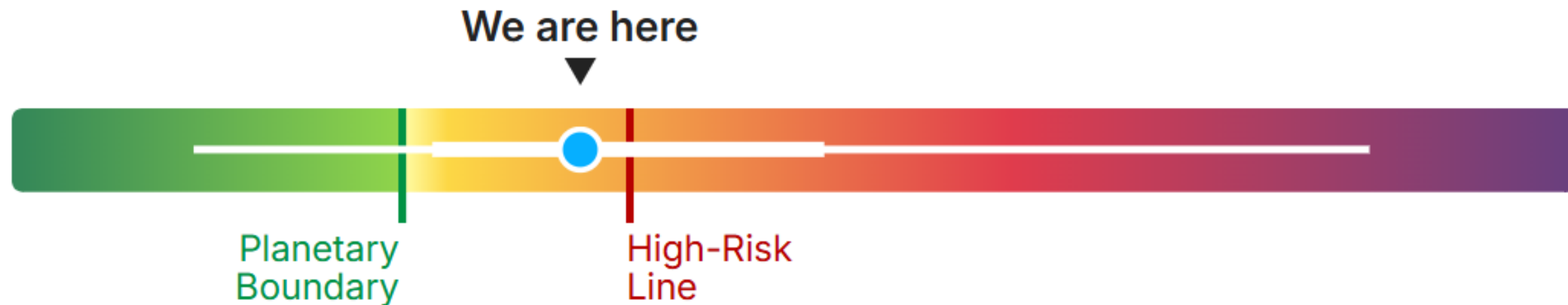


FIGURE ES 1 - Planetary Health at a glance. Just as a blood test provides insights into a human body's health and identifies areas of concern, this Planetary Health Check evaluates the 13 measured control variables across the 9 Planetary Boundary (PB) processes to report on Earth's stability, resilience, and life-support functions – the overall health of our planet. The 2025 assessment shows that seven of the nine PBs have been breached: **Climate Change, Change in Biosphere Integrity, Land System Change, Freshwater Change, Modification of Biogeochemical Flows, Introduction of Novel Entities, and Ocean Acidification.** All of these show increasing trends, suggesting further deterioration in the near future. Two PB processes remain within the Safe Operating Space: **Increase in Atmospheric Aerosol Loading** (improving global trend) and **Stratospheric Ozone Depletion** (currently stable). The Planetary Health Check Symbol (Fig. ES 2) summarizes all of these findings, showing the Planet's overall health at a glance.

Our planet's vital signs are flashing red

We have breached 7 out of 9 Planetary Boundaries.
The Planetary Health Check 2025 makes it clear: We have to act
now.

Current State



Irreversible tipping points

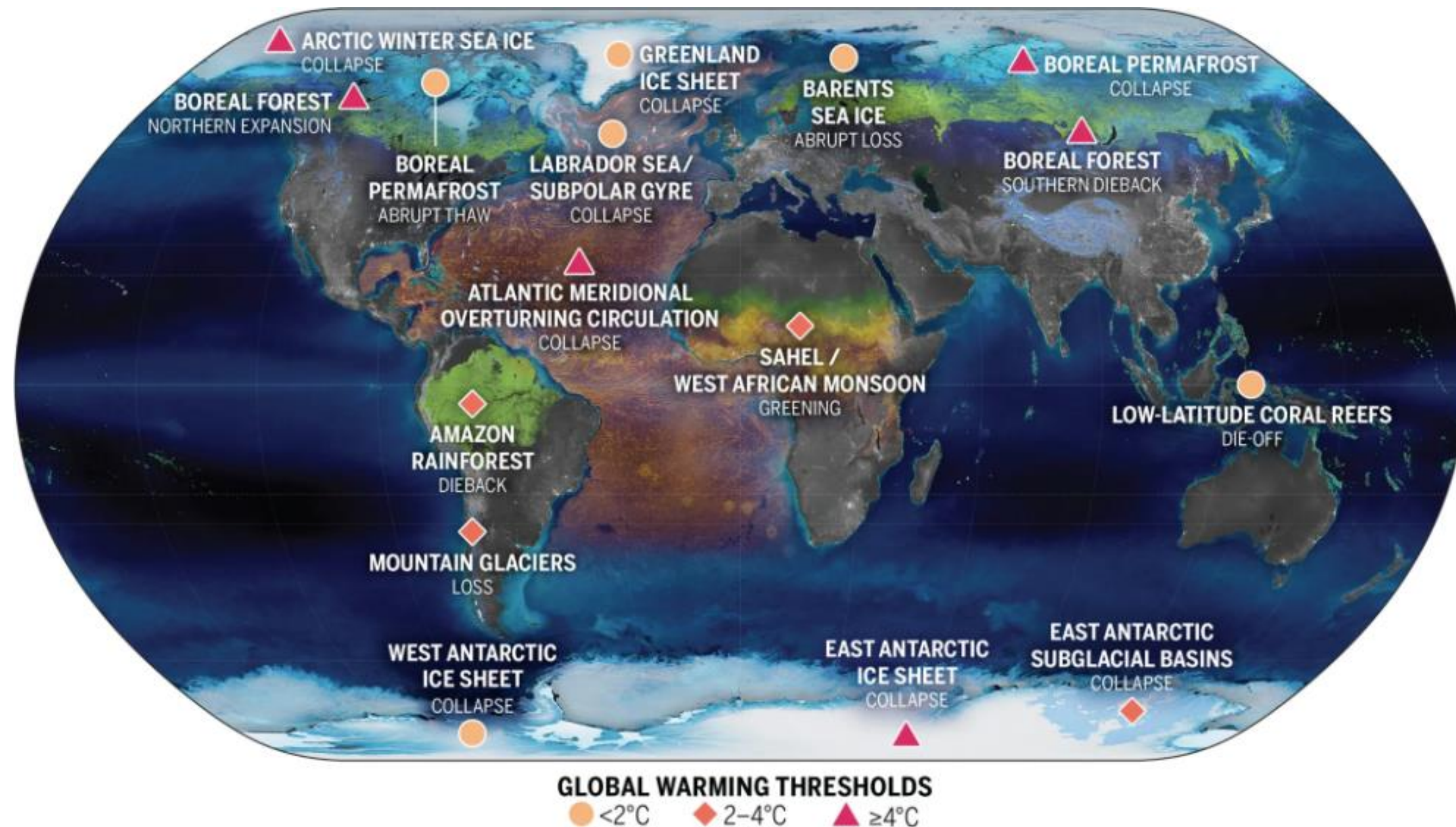


Fig. 1 Tipping points and the temperatures at which they are likely to to (Image: McKay et. al, Science, 9 Sept, 2022)

Once a system has been tipped into a new state, it can't be returned to its original state simply by undoing the even that caused it to tip. **Nine of these sixteen are showing instability.**



2030 = 2 x planet Earth



The “DONUT” of the social and planetary boundaries

The challenges we face are not only of a technical nature, but they also entail ethical dilemmas

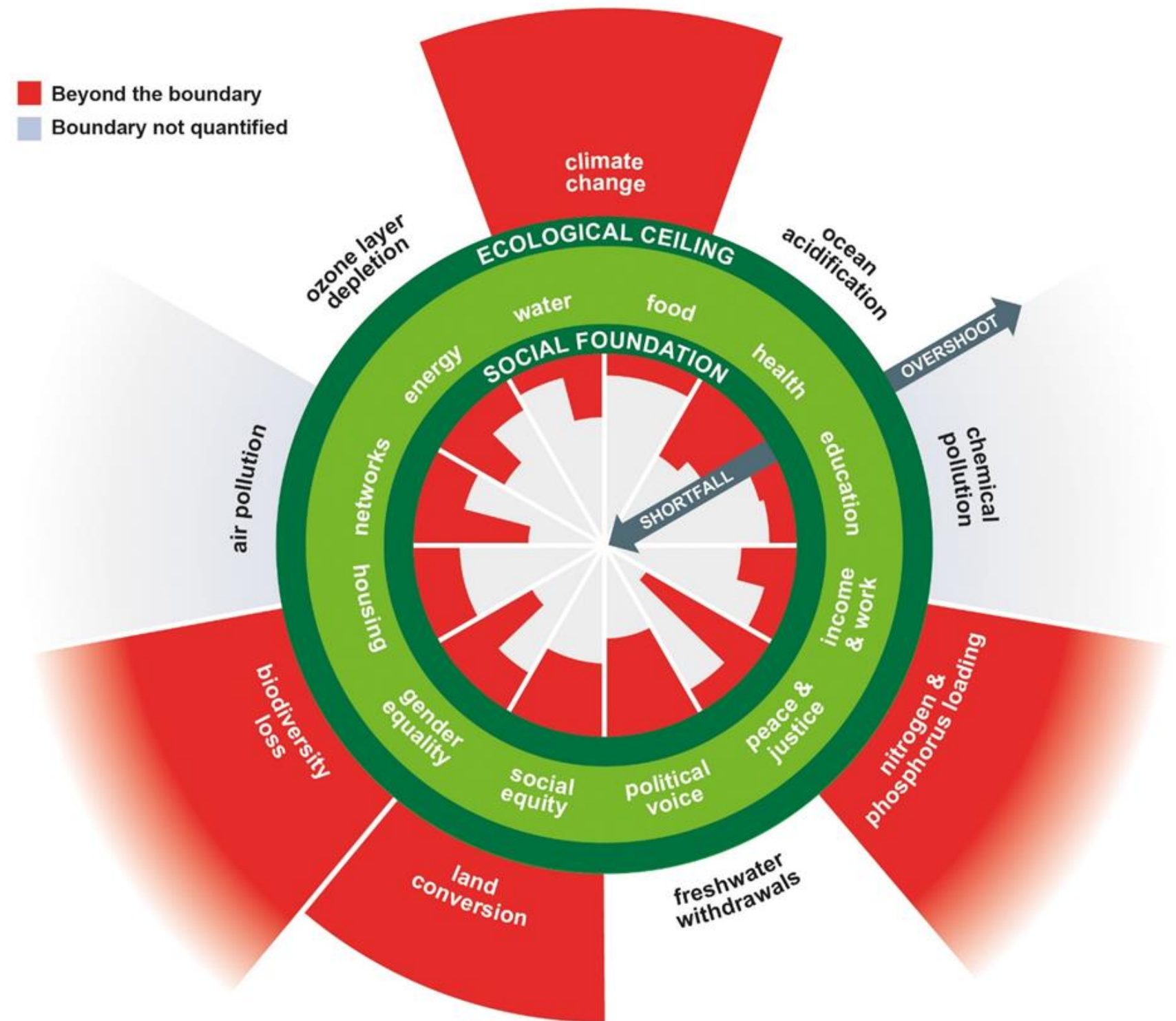
Johan Rockstrom
Kate Raworth

https://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development?language=es

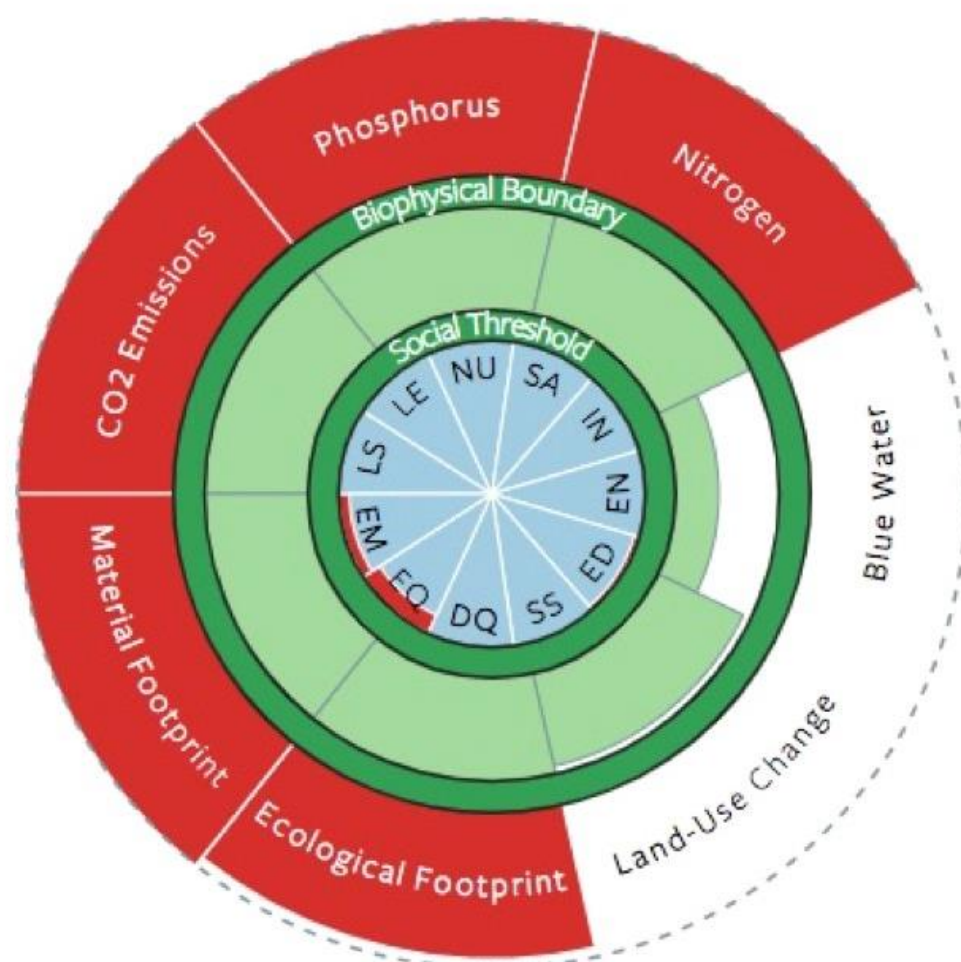
https://www.ted.com/talks/kate_raworth_a_healthy_economy_should_be_designed_to_thrive_not_grow?language=es

<https://www.netflix.com/title/81336476>

<https://www.youtube.com/watch?v=SbvtzLAZSeY>

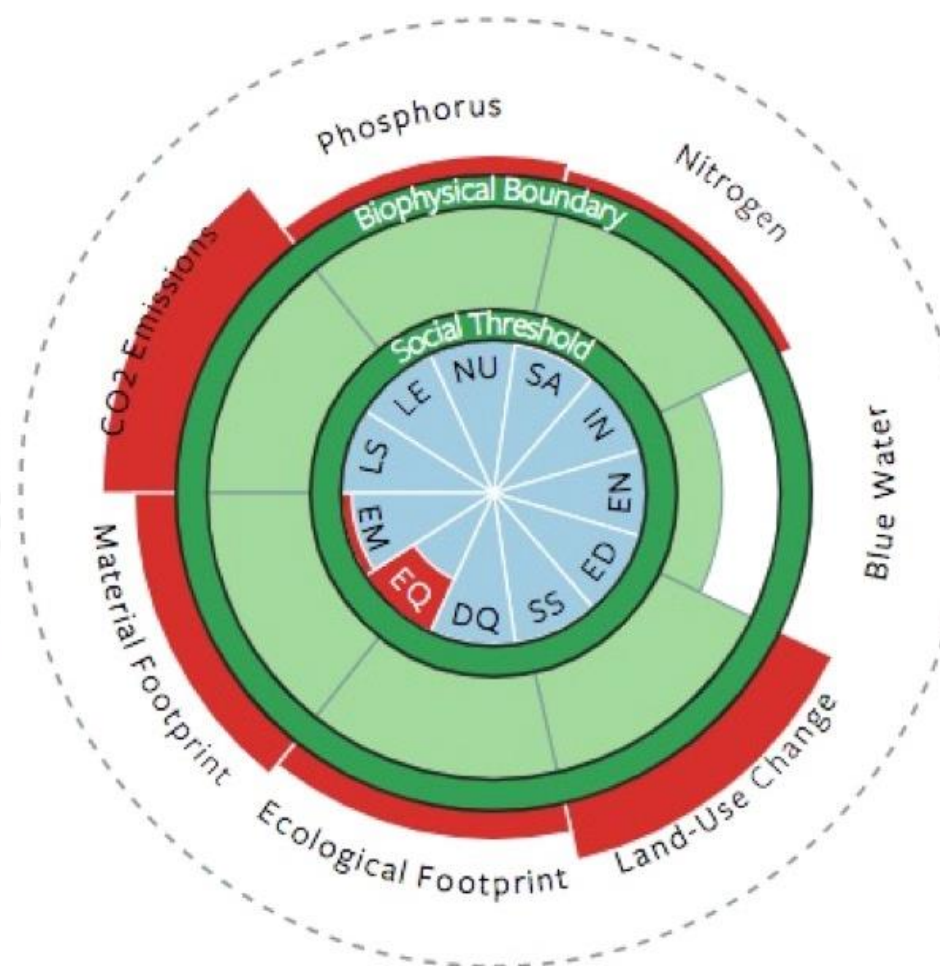


UK



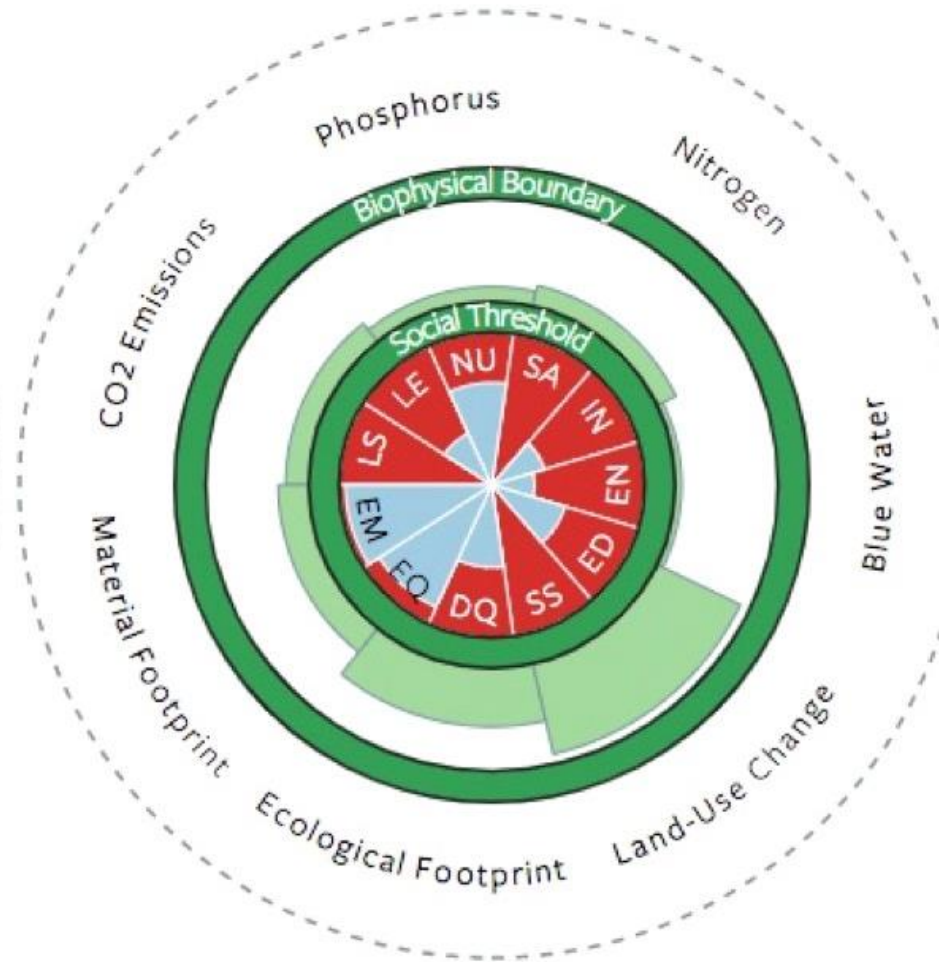
\$48,000 pc

Costa Rica



\$19,000 pc

Togo



\$2,000 pc

www.goodlife.leeds.ac.uk

UNFAIR SHARE OF THE CONSEQUENCES

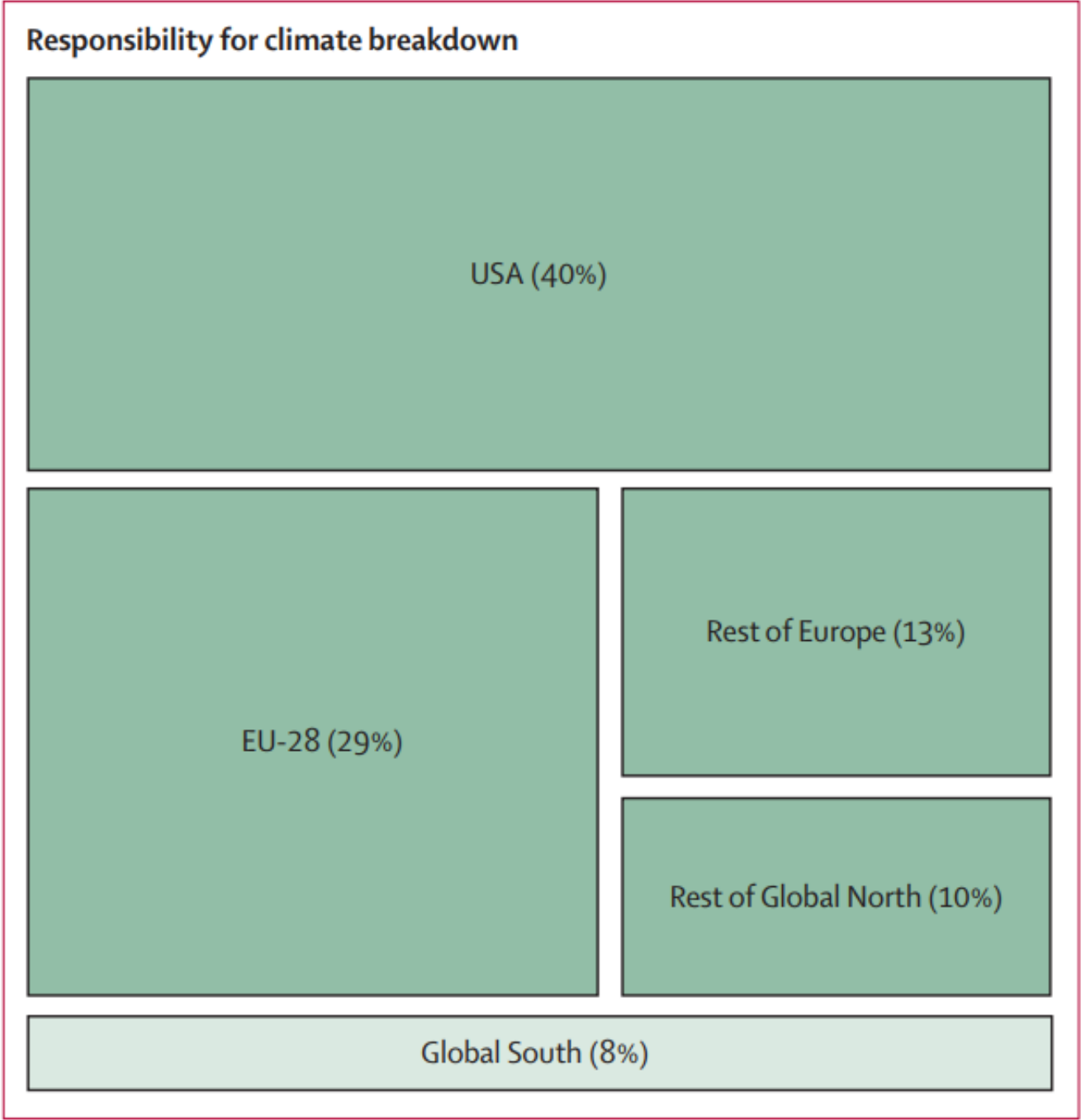
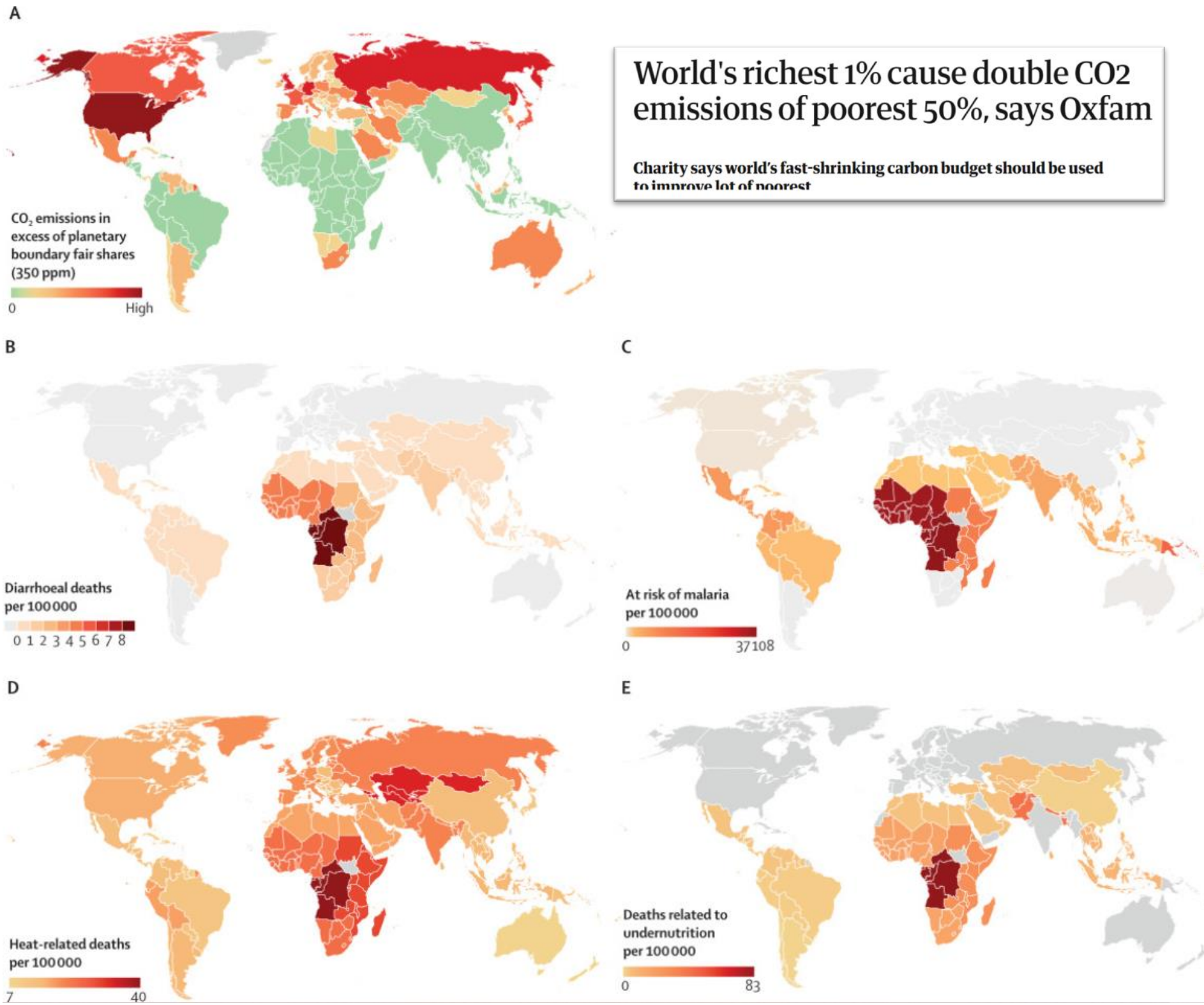


Figure: Responsibility for excess emissions

For the purposes of this analysis, the term Global North refers to the USA, Canada, Europe, Israel, Australia, New Zealand, and Japan, whereas the term Global South refers to the rest of the world: Latin America, Africa, the Middle East, and Asia.



Sustainability and security will not be possible without justice

"No podemos tener un planeta seguro si no hay justicia"

Los investigadores incorporan el criterio de justicia, considerado en otros trabajos, donde se sostiene que este es un ingrediente a considerar, si se quiere realmente integrar la humanidad dentro de los límites planetarios.

"No es una opción política. Hay pruebas abrumadoras de que un enfoque de justicia y equidad es esencial para la estabilidad planetaria. No podemos tener un planeta seguro en términos biofísicos si no hay justicia", resalta la profesora Joyeeta Gupta, coautora, catedrática de Medio Ambiente y Desarrollo de la Universidad de Ámsterdam.

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Article | [Open Access](#) | Published: 31 May 2023

Safe and just Earth system boundaries

nature sustainability

Perspective

<https://doi.org/10.1038/s41893-023-01064-1>

Earth system justice needed to identify and live within Earth system boundaries

<https://www.lavanguardia.com/natural/20230531/9009812/humanidad-transgrede-limites-garantizan-planeta-seguro.html>

<https://youtu.be/29VOnVwL-4A?t=4292>



Climate crisis

Consumerism and the climate crisis threaten equitable future for humanity, report says

The Earth Commission says hope lies in sustainable lifestyles, a radical transformation of global politics and fair distribution of resources



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NEW RESEARCH REVEALS PATH TO PROSPERITY FOR PLANET AND PEOPLE IF EARTH'S CRITICAL RESOURCES ARE BETTER SHARED

JOURNAL OF ECONOMIC POLICY REFORM
2024, VOL. 27, NO. 1, 1–24
<https://doi.org/10.1080/17487870.2023.2280969>

 **Routledge**
Taylor & Francis Group

 OPEN ACCESS  Check for updates

Governing the economics of the common good: from correcting market failures to shaping collective goals

Mariana Mazzucato

Professor in the Economics of Innovation and Public Value, Institute for Innovation and Public Purpose (IIPP)
University College London, London, UK

ABSTRACT

To meet today's grand challenges, economics requires an understanding of how common objectives may be collaboratively set and met. Tied to the assumption that the state can, at best, fix market failures and is always at risk of "capture", economic theory has been unable to offer such a framework. To move beyond such limiting assumptions, the article provides a renewed conception of the common good, going beyond the classic public good and commons approach, as a way of steering and shaping (rather than just fixing) the economy towards collective goals.

ARTICLE HISTORY

Received 10 August 2023
Accepted 5 November 2023

KEYWORDS

Public policy; political philosophy; common good; public good; market shaping

JEL CLASSIFICATION

B1; H1; H41; O19

THE LANCET



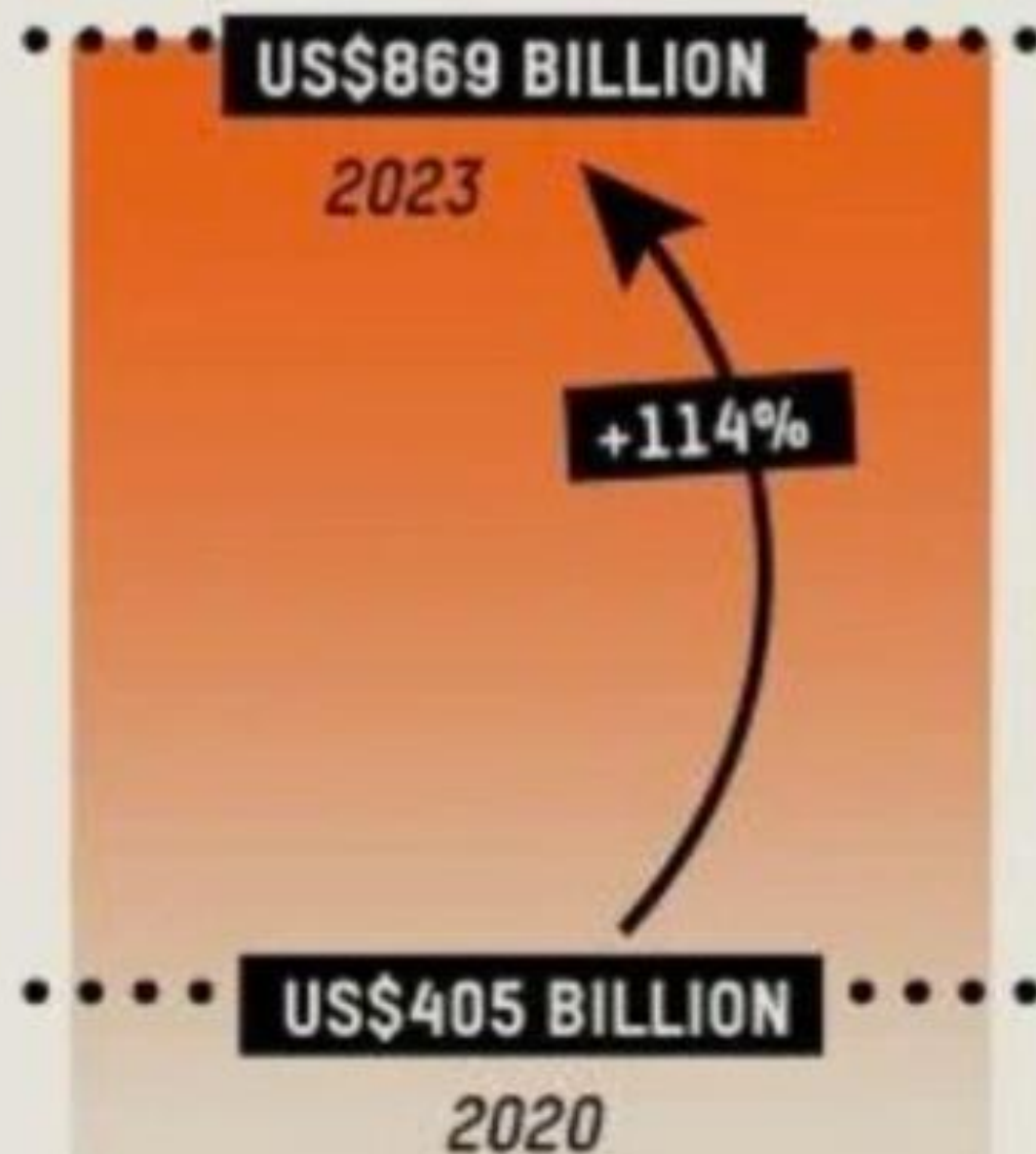
COMMENT · Volume 404, Issue 10457, P998-1000, September 14, 2024

Advancing the economics of health for all

[Mariana Mazzucato](#)^a  · [Tedros Adhanom Ghebreyesus](#)^b

[Affiliations & Notes](#) 

[Article Info](#) 



THE WORLD'S **FIVE RICHEST MEN**
HAVE MORE THAN **DOUBLED**
THEIR WEALTH SINCE 2020,
WHILE **FIVE BILLION PEOPLE**
WERE MADE **POORER.**



FOOD CRISIS



The GREEN REVOLUTION

1950 -1960

- High-yielding varieties
- Chemical fertilizers
- New Agrochemicals
- Irrigation
- Mechanization
- Land use change

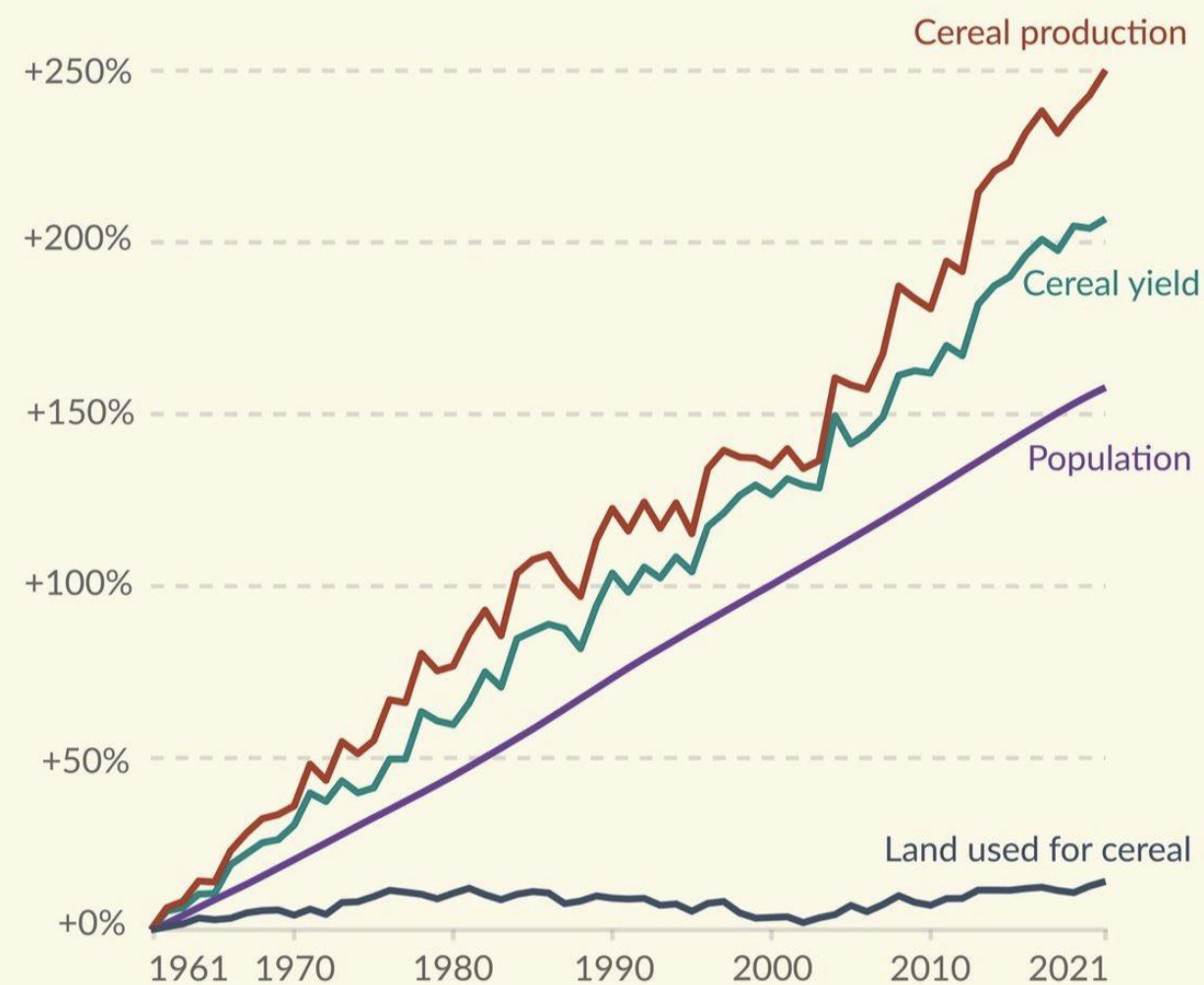
Sharp increases in **productivity**
Driver of **Prosperity** and wellbeing

One of the main drivers of human prosperity

Change from 1961–2021 in global cereal production, yield, land use, and population

Our World
in Data

All figures are indexed to 1961. This means 1961 is given the value zero.

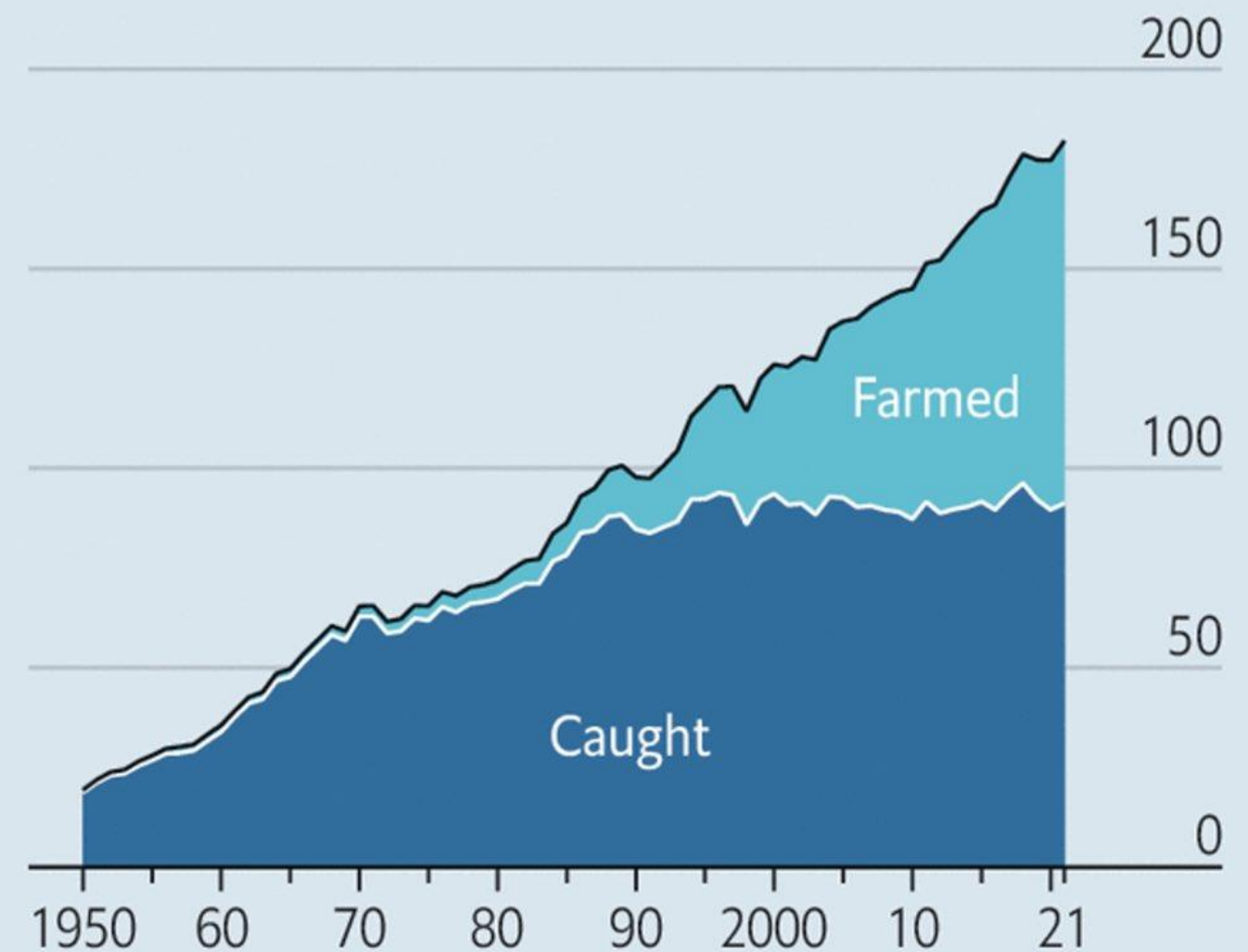


Data: Our World in Data based on World Bank;
Food and Agriculture Organization of the United Nations

OurWorldInData.org/crop-yields • CC BY

Economies of scales

World fish production, tonnes, m



Source: FAO



CURRENT FOOD PRODUCTION

28% of the global population works in agriculture

38% of the land is dedicated to agriculture and about **80%** of this land is used to produce animal feed

70% of fresh water consumption

80% contribution to biodiversity loss

50% decline in fish populations essential for food and jobs in the last 4 decades

1/3 of the food produced food is lost or wasted

An aerial photograph of a vast, flat agricultural landscape under a cloudy sky. The foreground and middle ground are filled with rows of golden-brown harvested grain. Numerous red combine harvesters are positioned in a grid-like pattern across the field, moving from the background towards the foreground. The background shows a flat horizon with some distant structures and more fields. The overall scene conveys a sense of large-scale, efficient agricultural production.

EFFICIENCY

IN THE SHORT TERM

***“Many of the problems in the present, were
the solutions of the past”***

GLOBAL HUNGER INDEX

[Methodology](#) [Ranking](#) [Trends](#) [Issues in Focus](#) [Policy Recommendations](#)

828
millions
(9,8%)



nature

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EDITORIAL | 04 July 2023

Hunger and famine are not accidents – they are created by the actions of people

Hundreds of millions of people are going hungry as conflicts affect food supplies. There is also growing evidence that food producers are exploiting the situation to increase their profits.

Key Messages

The world is facing a serious setback in efforts to end hunger. Conflict, the climate crisis and the economic consequences of the COVID-19 pandemic – compounded by the war in Ukraine – are turning a crisis into a catastrophe.

[Have a look at the 2022 GHI Ranking »](#)

The 2022 Global Hunger Index reflects both the scandal of *alarming* hunger in too many countries, as well as the changing trajectory in countries where decades of progress in tackling hunger is being eroded.

[Explore the global, regional, and national hunger trends »](#)



10 billion people in 2050



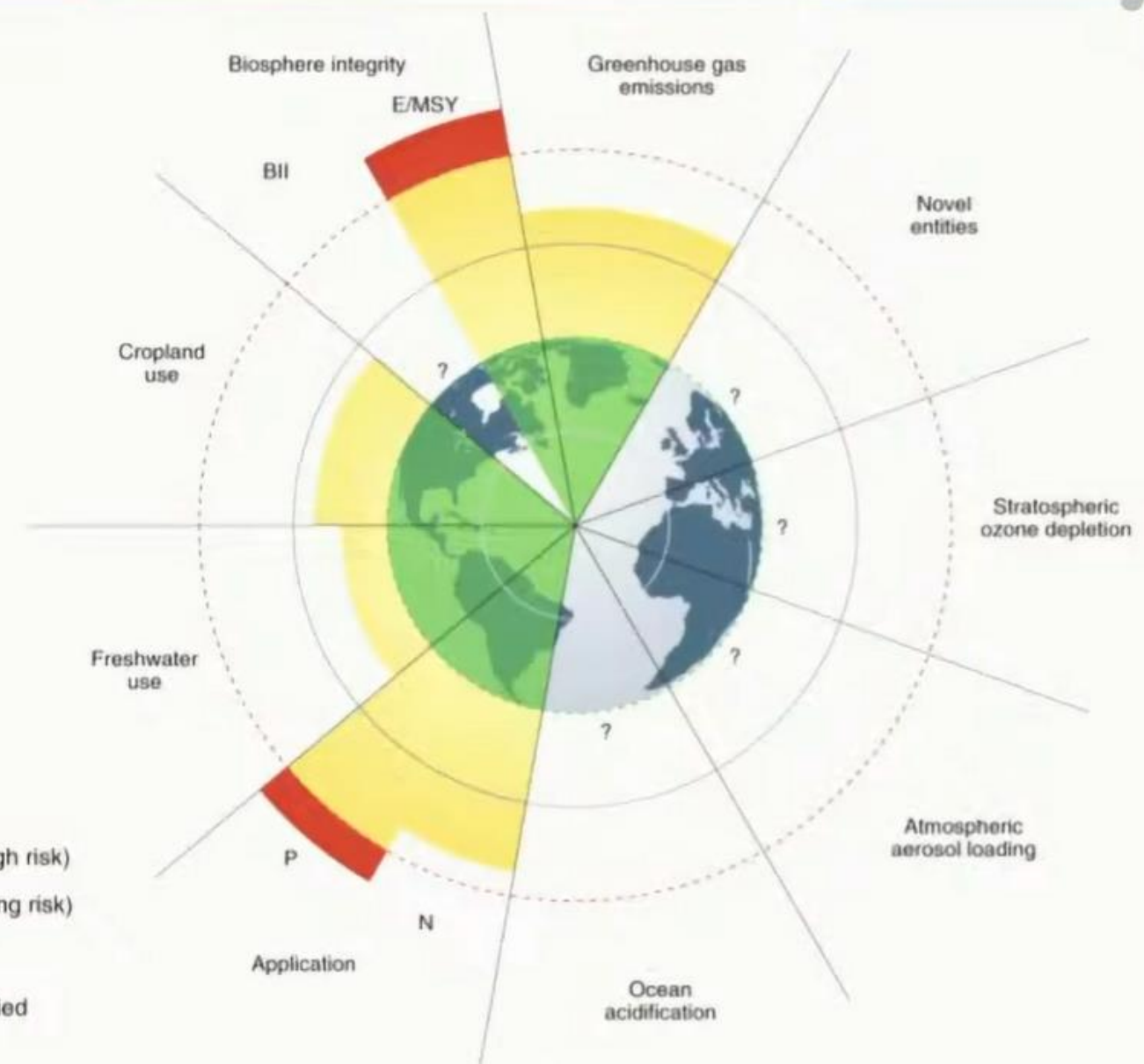
Understanding the biophysical limits to growth
to build an economy that respects planetary boundaries

The food system transgresses Planetary Boundaries

- 21-37% GHG emissions from global food system (IPCC 2019)
- Majority of global working poor in agriculture (WB, 2016)
- 690 million undernourished 2019 (FAO et al. 2020)
- >10 million lives lost annually due to unhealthy diets (GBD, 2019)

Source: Rockström et al. 2020, Nature Food

- Beyond zone of uncertainty (high risk)
- In zone of uncertainty (increasing risk)
- Below boundary (safe)
- Food boundary not yet quantified



Evidence tells us that food systems are failing on multiple fronts, starting from food security and nutrition... and is getting worse.



**“Humanity now poses a threat to
the stability of the planet...
[This requires] nothing less than a
new global agricultural revolution.”**

Dr. Johan Rockström

1.5°C IS A LIMIT NOT A GOAL

RESEARCH

CLIMATE CHANGE

Global food system emissions could preclude achieving the 1.5° and 2°C climate change targets

Michael A. Clark^{1*}, Nina G. G. Domingo², Kimberly Colgan², Sumil K. Thakrar², David Tilman^{3,4}, John Lynch⁵, Inês L. Azevedo^{6,7}, Jason D. Hill²

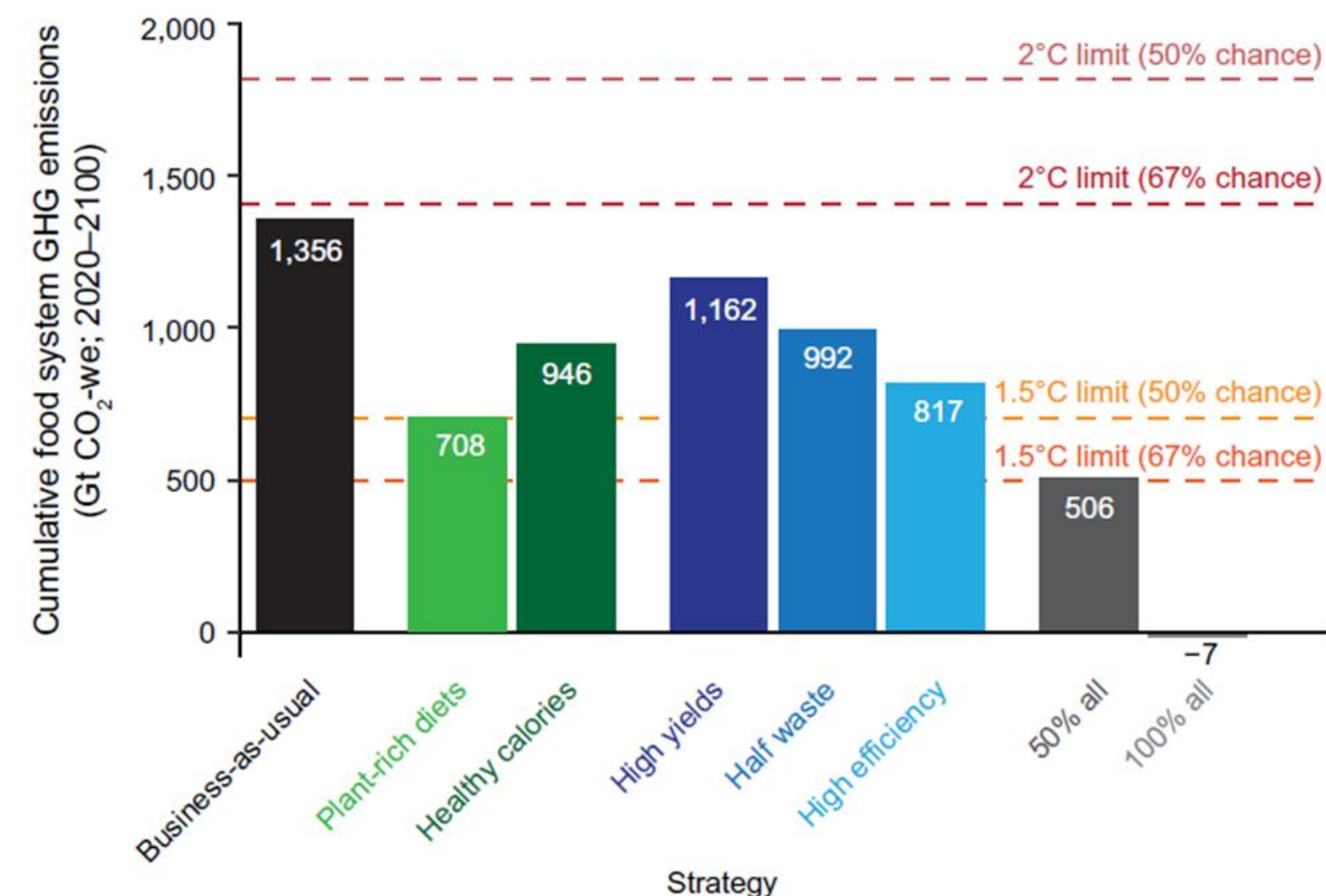
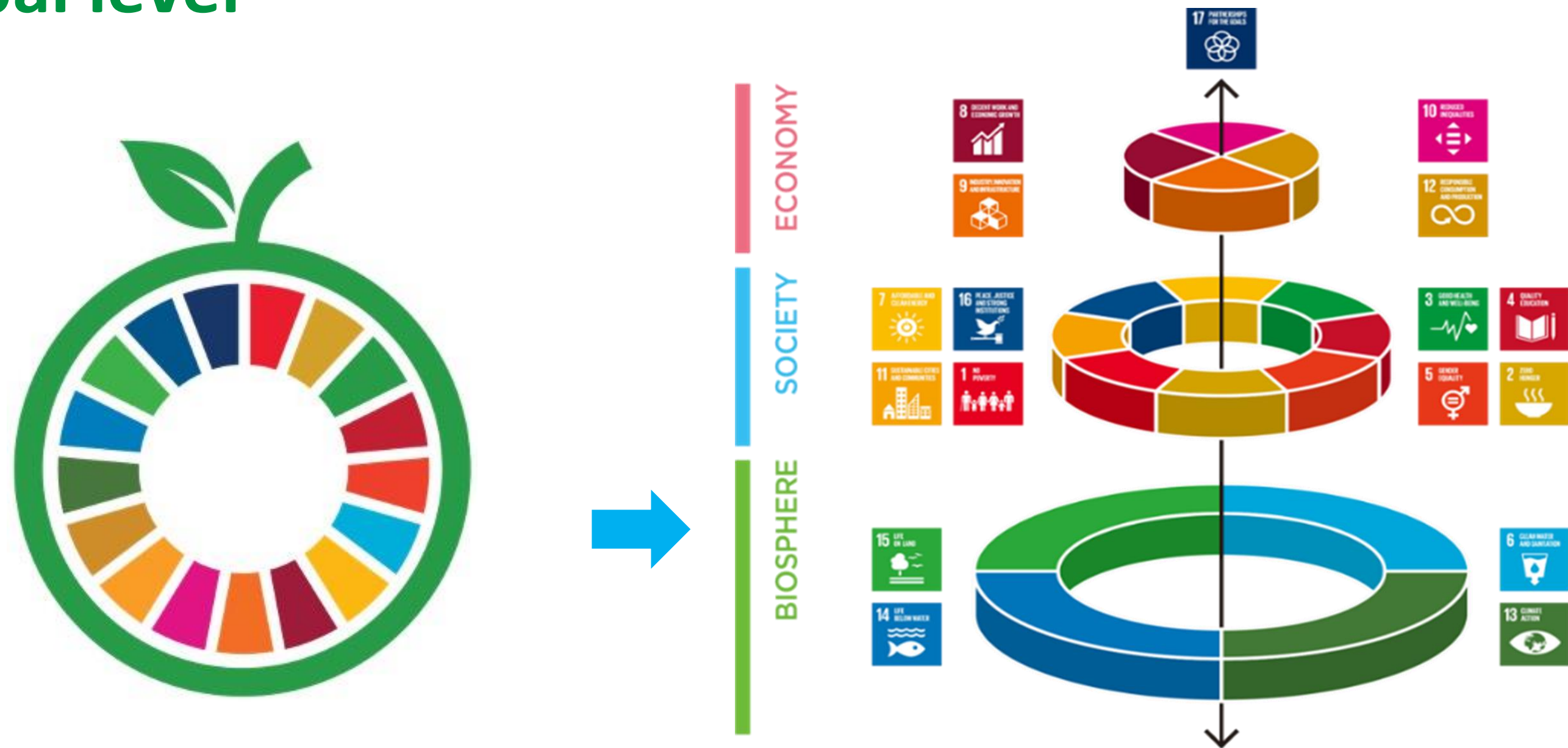


Fig. 1. Projected cumulative 2020 to 2100 GHG emissions solely from the global food system for business-as-usual emissions and for various food system changes that lead to emission reductions.

We must radically transform the Food Systems at a global level



Only if we succeed in returning food systems to a safe and stable operating space will we have real options to achieve the Sustainable Development Goals (SDGs) and the Paris Agreement.

Food Systems Transformation

United Nations Food Systems Summit:



Innovation is a fundamental lever for change

If we are to transform food systems both locally and globally, actors from all sectors and disciplines will need to work together using

- **shared innovation principles**
- **new processes of knowledge generation**



Food systems transformations are needed

Recorte rectangular



The Aspiration



INCLUSIVE

Ensuring economic and social inclusion for all food system actors, especially smallholders, women and youth



SUSTAINABLE

Minimizing negative environmental impacts, conserving scarce natural resources and strengthening resiliency against future shocks



EFFICIENT

Ensuring that sufficient food is produced and available for the world's population



NUTRITIOUS & HEALTHY

Promoting consumption of a diverse range of healthy, nutritious, and safe foods

The Challenges

700 million people in the agricultural sector live **below the global poverty line**

70% of water withdrawal and **30% of greenhouse gas emissions** come from agrifood sector

60% more food **will be required** to feed a world population of 9.5 billion by 2050

2 billion people in the world suffer from various forms of **malnutrition**

These aspirations are aligned with the Sustainable Development Goals, and achieving them will require coordinated action by all global food system actors to address systemic and interconnected challenges

THE BIG

CHALLENGE

How *on earth* can we feed a future population 10 billion people a healthy diet within planetary boundaries?

[https://eatforum.org/content/uploads/2019/01/EAT-Lancet Commission Summary Report.pdf](https://eatforum.org/content/uploads/2019/01/EAT-Lancet_Commission_Summary_Report.pdf)

<https://livestream.com/brightnorway/eat>



#foodcanfixit #EATLancet

EAT



A new food revolution towards
SUSTAINABILITY
RESILIENCE
AND JUSTICE

Three ways to return food systems within the planetary boundaries

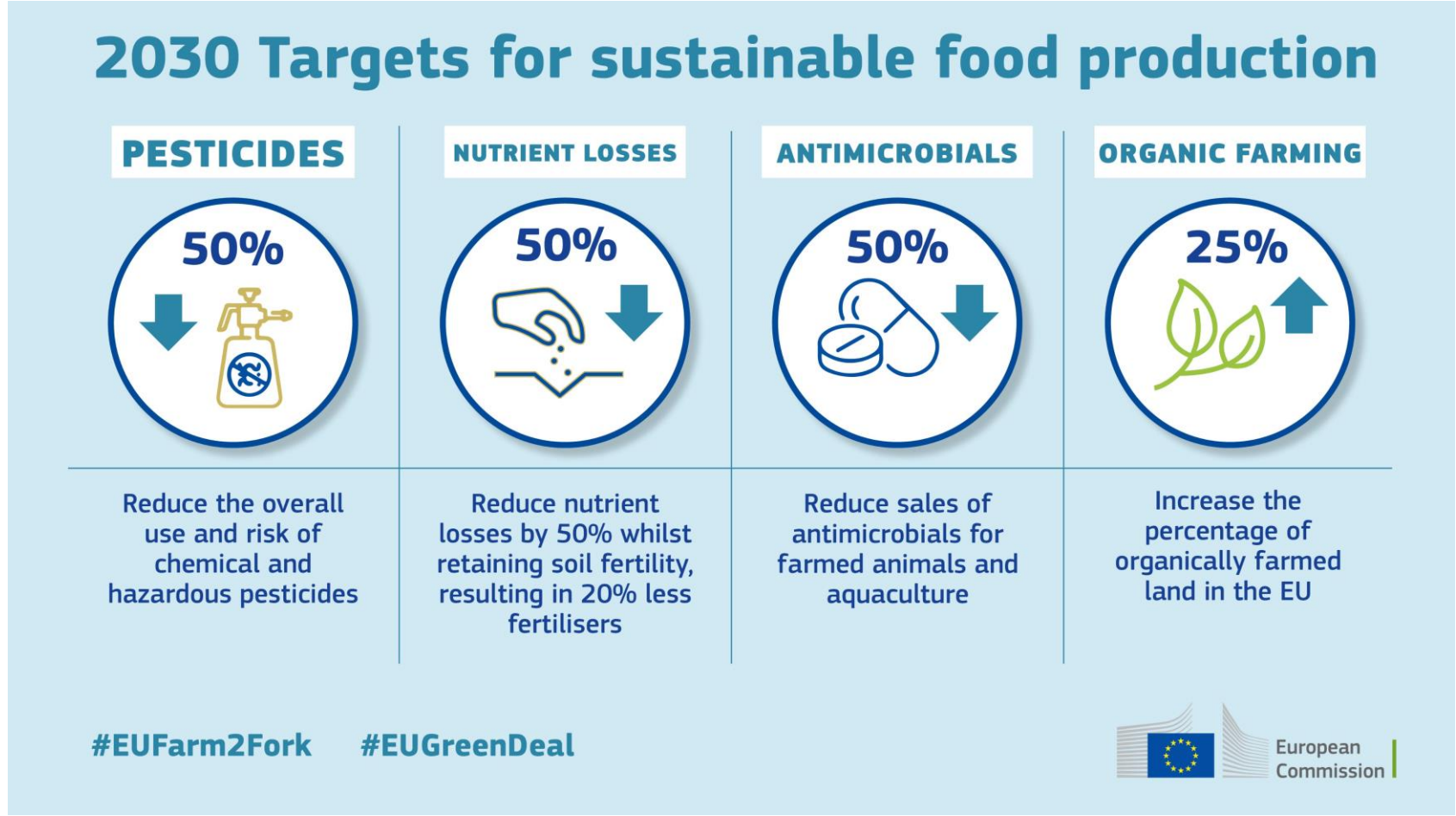
Potential for improvement:

- | | |
|---|-----------------------------------|
| 1. Reduction of food waste
(avoid + reuse) | 6-16% |
| 2. Eco-innovation in agrosystems
(promote the most impactful measures) | 3-30% |
| 3. Diet change
(less environmentally intensive foods) | 5-22% |
| | Σ 14-68% |

The European Green Deal

#EUFarm2Fork	#EUBiodiversity
Claves de la nueva estrategia europea de la granja a la mesa	Claves de la nueva ESTRATEGIA EUROPEA DE BIODIVERSIDAD
 -20% uso de fertilizantes.	 30% de suelo y mar en la UE bajo protección
0% Objetivo de contaminación de suelos por N y P.	10% Superficie agraria para paisaje de alta biodiversidad.
 25% suelo en agricultura ecológica en 2030.	 -50% plaguicidas
 STOP productos que deforestan terceros países.	 Restaurar ecosistemas ante cambio climático.
 -50% Reducir desperdicio de alimentos 2030.	 Ciudades verdes. 25.000 km de ríos sin obstáculos.
	

Productive Model Transformation



High transition costs and resistance

Intense Food Systems Innovation Activity

Efficiency and
optimal use of
resources



Food lost and
waste
reduction



Carbon Farming
Soil
regeneration



Protein
Transition



Tools for change

Innovations in Biotechnology

- Next Generation Sequencing (NGS)
- Phenotyping Methodologies
- New low density array systems

Harnessing Technology in the field

- Satellite technologies
- Automatic milking systems (AMS)
- Robotics in crop production
- Drones/Unmanned Aerial vehicles (UAVs)

New production systems

- Indoor/Vertical Farming
- Hydroponics
- Urban agriculture



FIGURE: TOP 10 TECHNOLOGIES FOR FOOD SYSTEMS TRANSFORMATION



https://cgspace.cgiar.org/bitstream/handle/10568/104050/Transformation%20Initiative%20Briefing%20-%20Tech%20A4%20for%20web_repaired.pdf?sequence=1&isAllowed=y



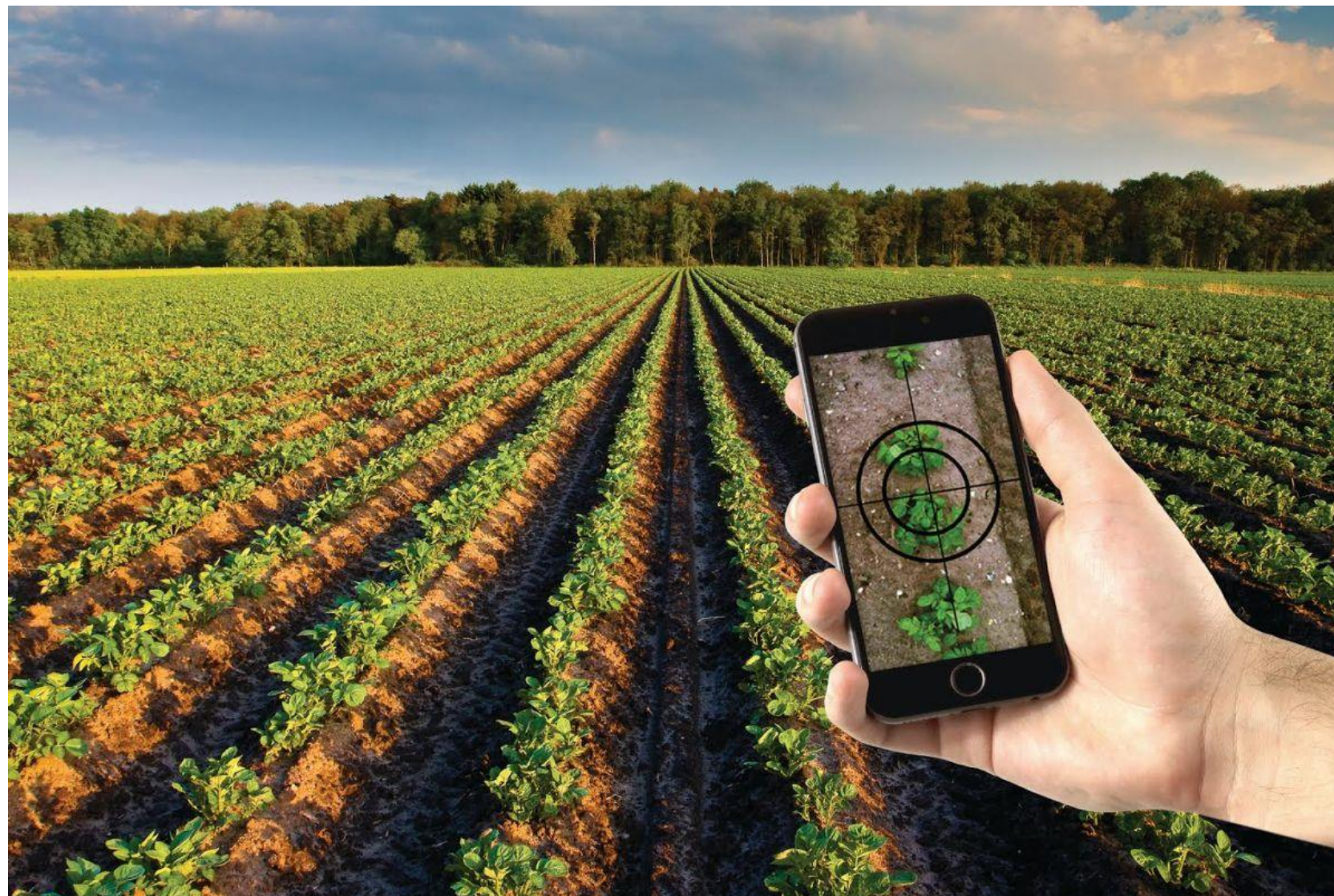
“We are in the cusp of the deepest, fastest and most consequential disruption in food and agricultural production since the first domestication.”

Spain: Becoming a FoodTech nation

- With more than 400 startups along the entire agri-food value chain, it stands out as a country that generates startups of high technological value, **only behind the United Kingdom, Israel or the United States**.
- More than 60% do not exceed 3 years of life and 13% of startups have been created during the pandemic.
- Catalunya 22,4 % ; Community of Madrid 20,21%; Andalusia 14,29%



Harvesting data



World-leading expertise and capabilities in data science, smart analytics, bioinformatics, translational research and knowledge exchange in soils, crops, livestock, food and sustainability.

Working alongside academia and industry to deliver new innovations, services and products for the whole food and farming sector (**Rothamsted Research, Reading University, NIAB and SRUC**).

Data unlocks unimaginable solutions to feed the world and protect the planet

<https://www.youtube.com/watch?v=807EAfobKiQ>

<https://agrimetrics.co.uk/what-we-do>

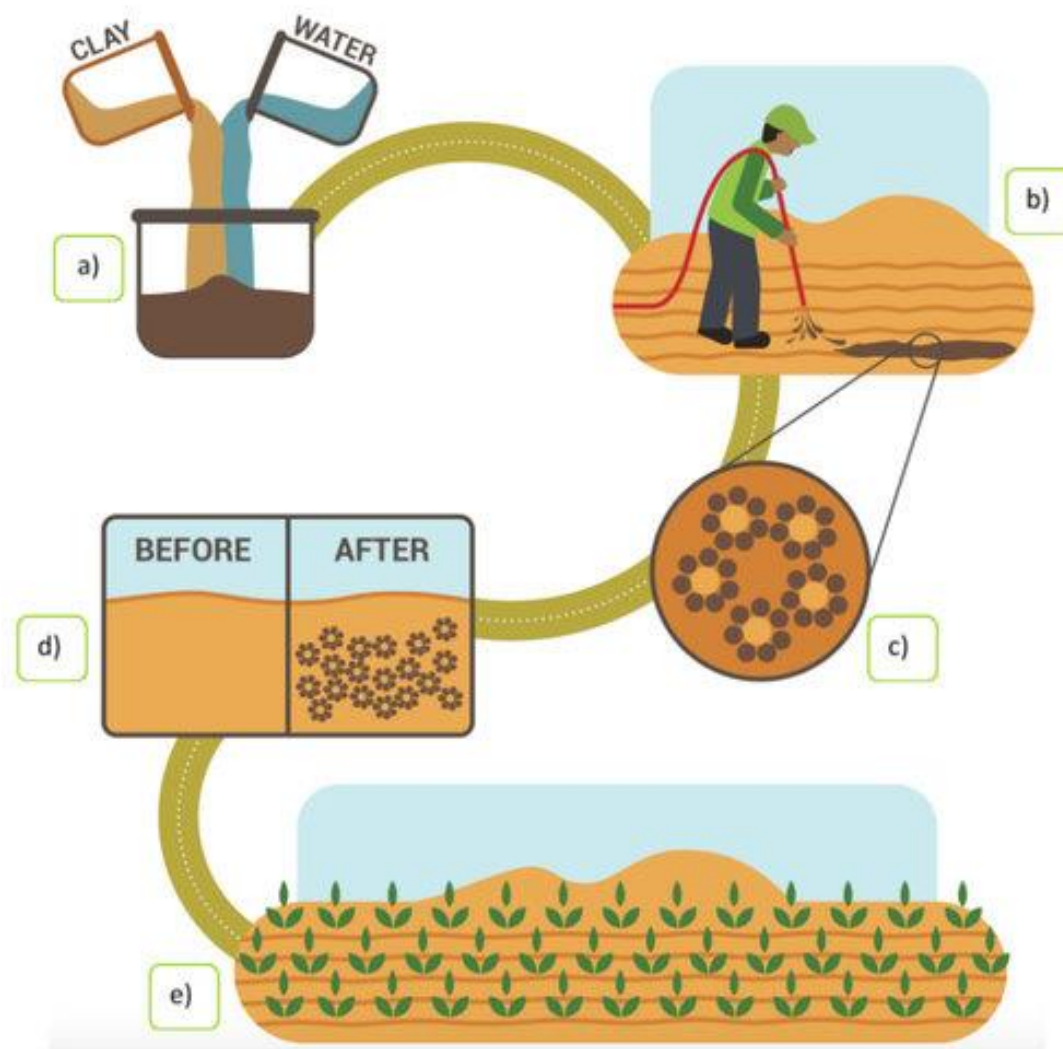
<https://www.youtube.com/watch?v=8dksuAXc6P8>



TEVEL
Aerobotics Technologies



DESERT CONTROL



https://www.youtube.com/watch?v=hGhVU_WOErs

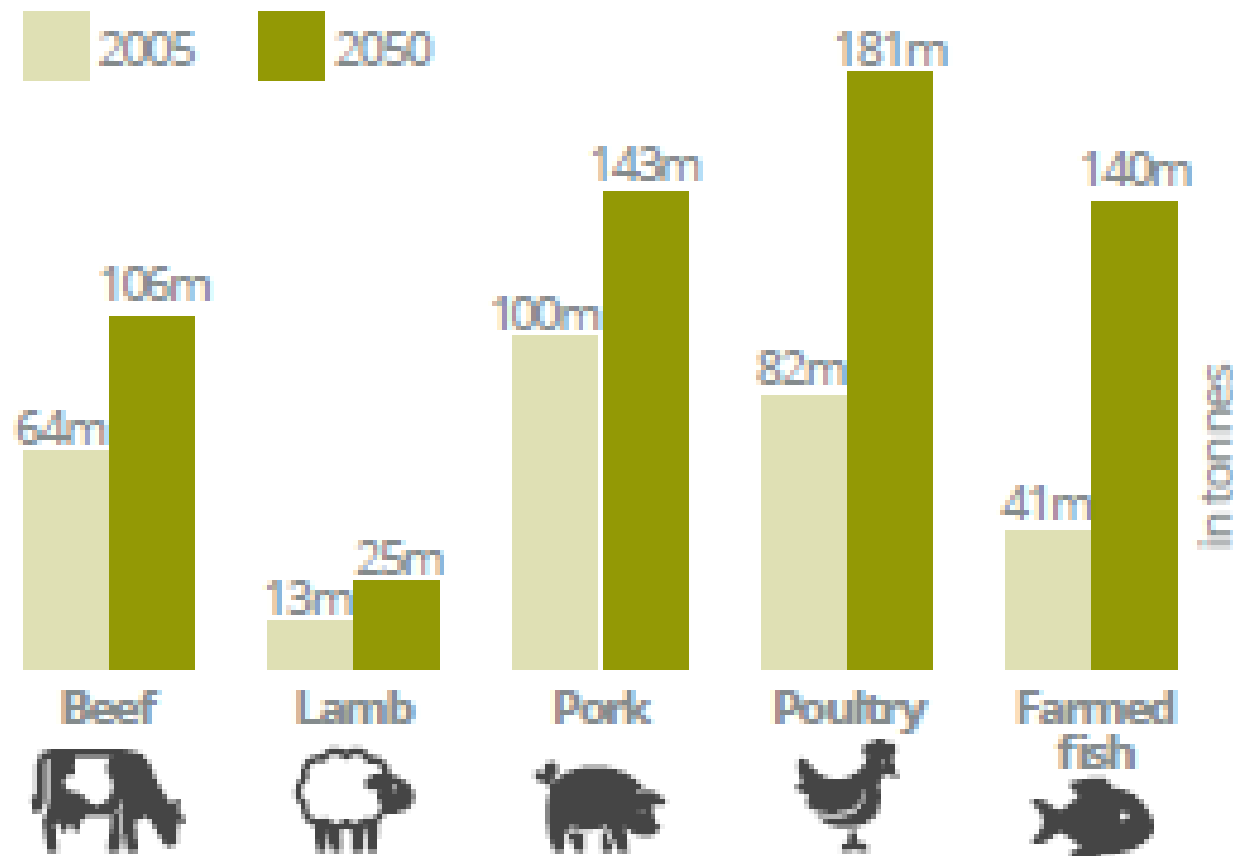




Too Good To Go

THE PROTEIN TRANSITION

Global demand for animal products



**76% demand increase
by 2050**

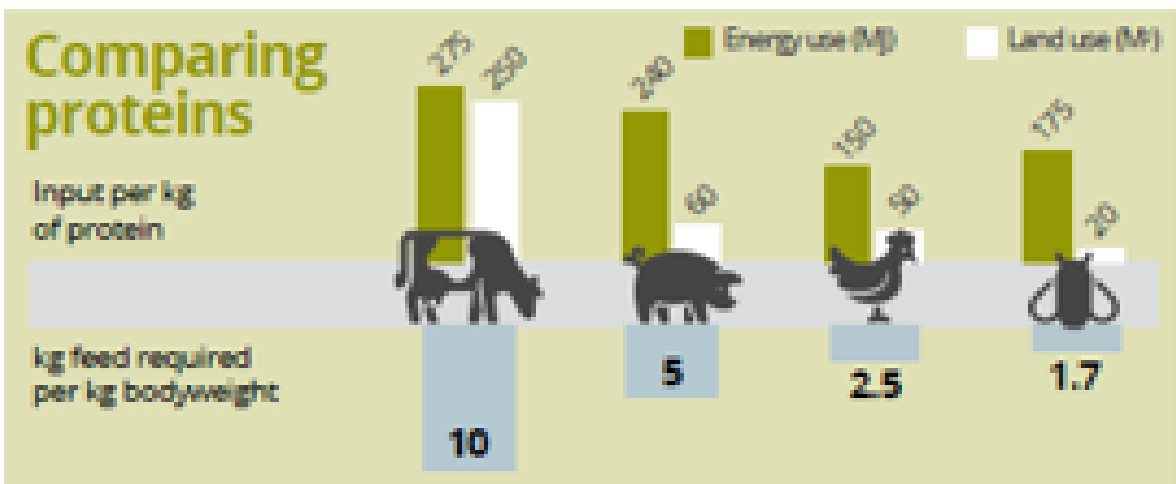
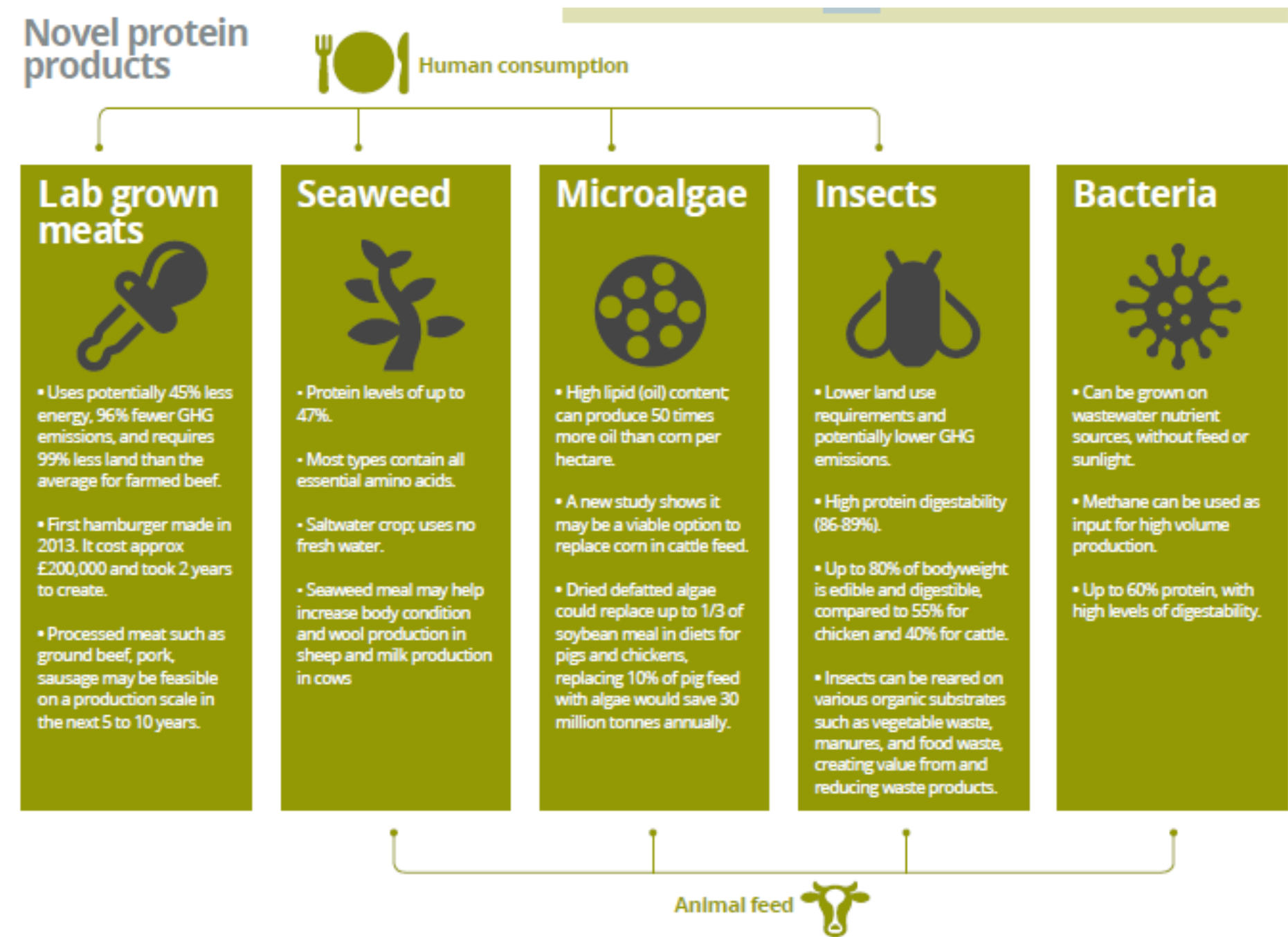
Conventional protein
production systems are
becoming environmentally
unsustainable

- Antimicrobial resistance
- Zoonotic diseases
- Non communicable diseases

https://www.ted.com/talks/bruce_friedrich_the_next_global_agricultural_revolution

The Protein disruption

The environmental cost of meat production means there is a need to find alternative protein sources for both human consumption and animal feed, supplementing efforts to develop sustainable aquaculture systems



May innovation and technology make animals obsolete?

A new generation of startups is emerging promising more efficient and sustainable protein production

News Opinion Sport Culture Lifestyle More ▾

Environment ► Climate change Wildlife Energy Pollution

Meat industry

This article is more than 7 months old

No-kill, lab-grown meat to go on sale for first time

Singapore's approval of chicken cells grown in bioreactors is seen as landmark moment across industry

Damian Carrington
Environment editor

@dpcarrington

Wed 2 Dec 2020 00:01 GMT



Chicken bites will be initially available in a Singapore restaurant. Photograph: Hampton Creek/Eat Just at, produced in bioreactors without the slaughter of an animal, approved for sale by a regulatory authority for the first time. The product has been hailed as a landmark moment across the meat industry.

CUBIQ
FOODS

Smart fat solutions



Modernizing meat production

The Good Food Institute is a nonprofit think tank and international network of organizations working to accelerate alternative protein innovation.

Globally, meat consumption is the highest it has ever been. According to the UN, global meat production is projected to double by 2050.

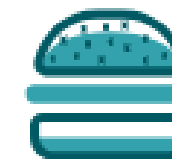
With plant-based meat, cultivated meat, and fermentation, we can mitigate the environmental impact of our food system, decrease the risk of zoonotic disease, and ultimately feed more people with fewer resources.

By making meat from plants and cultivating meat from cells, we can modernize meat production.

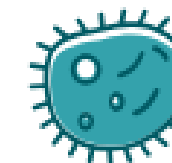
GFI is building a world where alternative proteins are no longer alternative.



Plant-based meat ▶



Cultivated meat ▶



Fermentation ▶

Flexitarians, Millennials, and Z Generation are Driving the Demand

Flexitarians, or consumers who favor plant-based foods while eating animal products in moderation, are the major drivers of the industry’s increasing demand

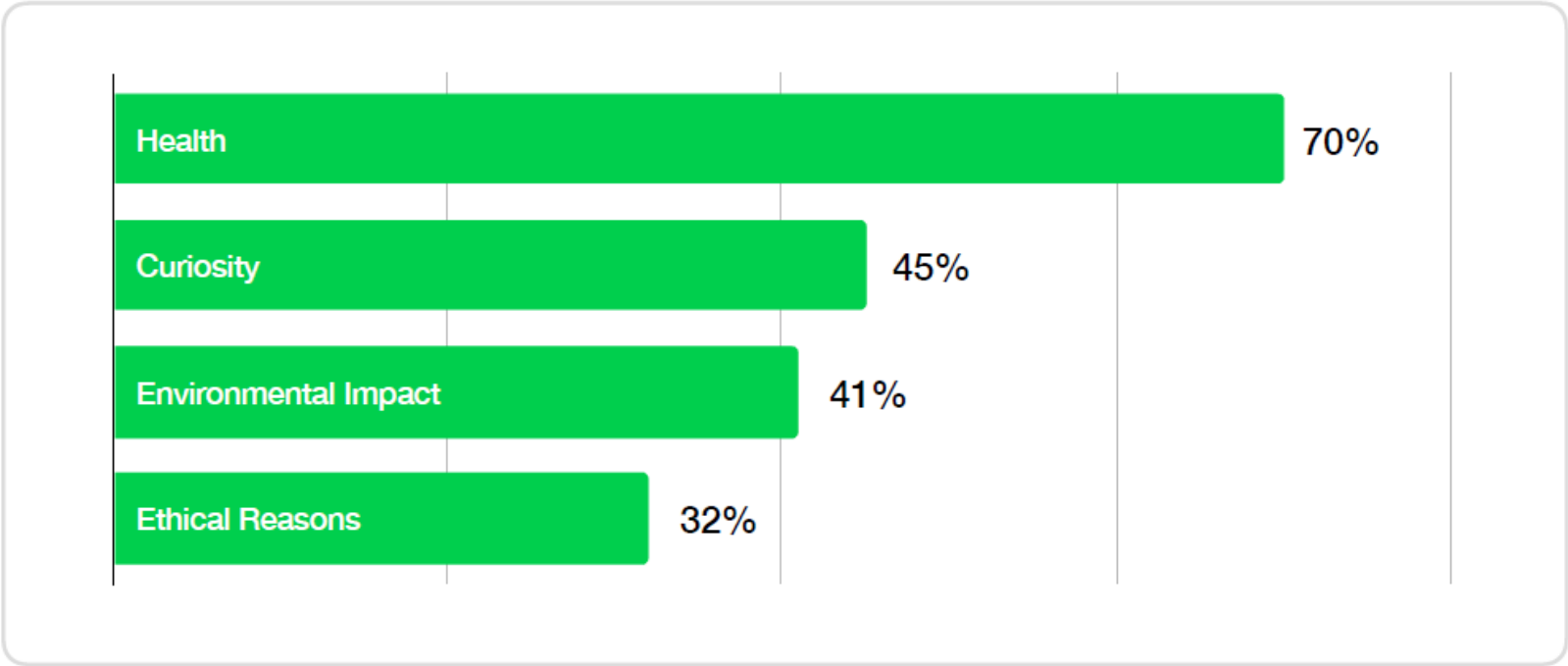
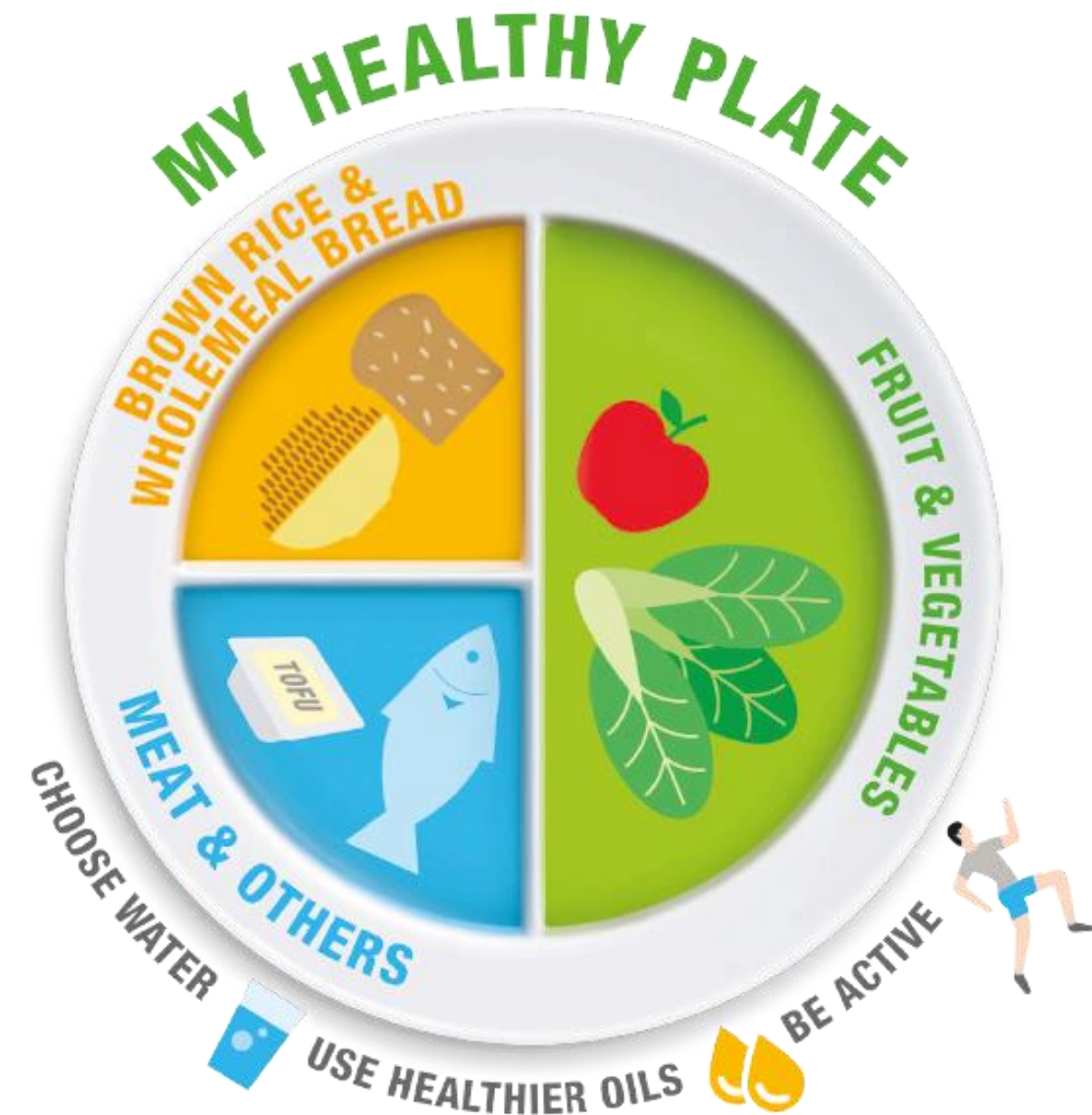


Figure 9. 80% of American meat eaters want to eat more plant-based meat. Their biggest motivators are health, curiosity, environmental impact and ethical reasons. Source: Numerator.

"Just as electric cars are not a silver bullet to fix climate change, these solutions are not going to fix our damaging industrial food system. We need to change the system – not the product."

Phil Howard



THE POLITICS OF PROTEIN

FAKE MEAT IN THE SPOTLIGHT

INFOSHEET APRIL 2022

FAKE MEAT WILL NOT SAVE THE PLANET

https://www.ipes-food.org/_img/upload/files/FakeMeatSpotlight.pdf



A "business as usual"
approach is not sufficient.
Paradigm change in animal
production systems is needed.

The future of European agri-food systems lies not on linear but on circular approaches, with an integrated and regenerative use of natural resources and associated agri-biomass, avoiding loss and leakage of resources or pollutants.

Management of animal health and welfare under the concept of **One Health** is a prerequisite for well-functioning circular and sustainable agri-food systems.

Back to the ground ...

Today 95% of food production depends on soil

One-third of the world's soil is severely degraded and fertile soil continues to be lost at a rate of 24 billion tons per year.

World's soils 'under great pressure', says UN pollution report

Soils provide 95% of all food but are damaged by industrial, farming, mining and urban pollution

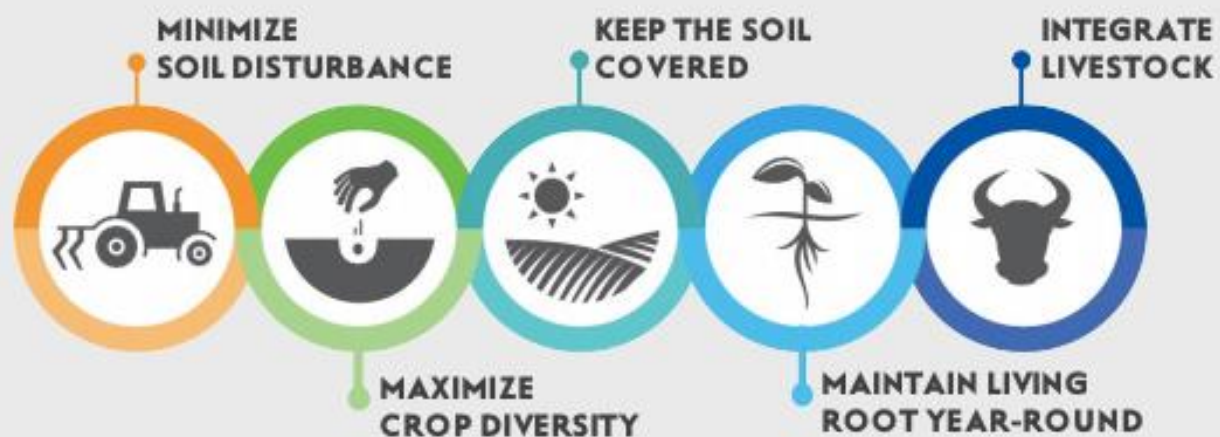


▲ Glyphosate herbicide is sprayed on to a corn field in northwestern France. Photograph: Jean-François Monier/AFP/Getty

REGENERATIVE AGRICULTURE SHIFTS THE PARADIGM

Compete with Nature	→	Partner with Nature
Disturb Soil	→	Protect Soil
Monoculture	→	Diversity
Reductionist	→	Holistic

5 Core Principles of Regenerative Agriculture



3 Key Outcomes

Improve soil health

Foster biodiversity

Promote economic
resilience in farming
communities

Agroecology

Dynamic and holistic approach to agriculture and animal husbandry,

A **science, a set of practices and a socio-political movement** aimed at supporting the transition of agri-food systems.

It aims to **connect science, practice and society** and provoke the adoption of a set of **policies** aimed at sustainable agricultural practices.

**Circular
Bioeconomy**

Water and soil

Agroecology

**Conservation
agriculture**

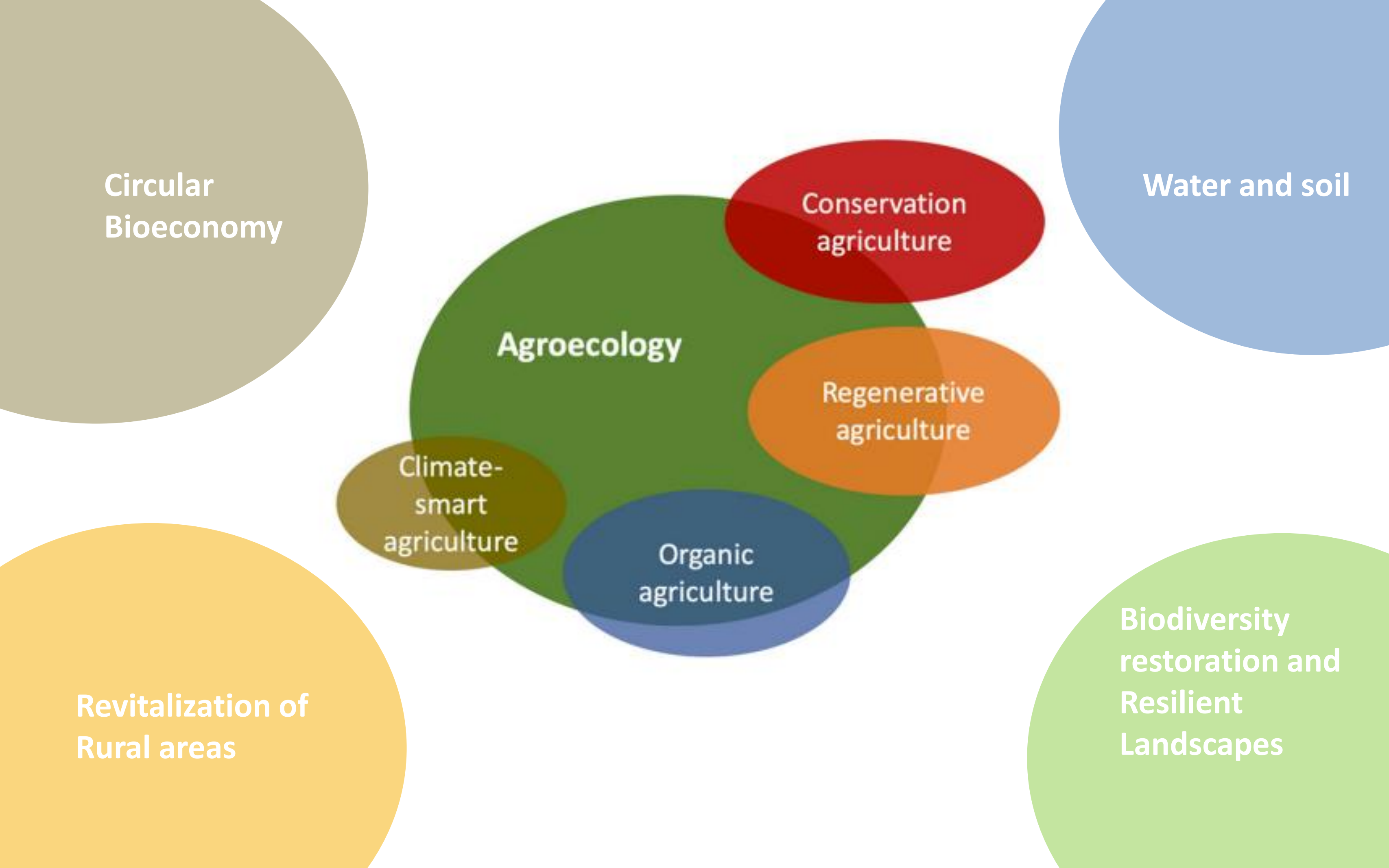
**Regenerative
agriculture**

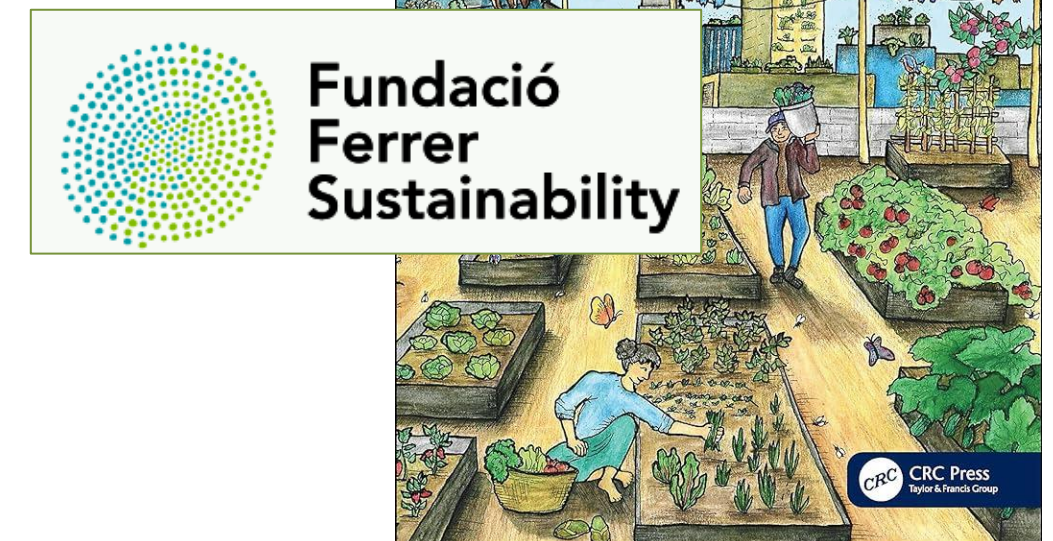
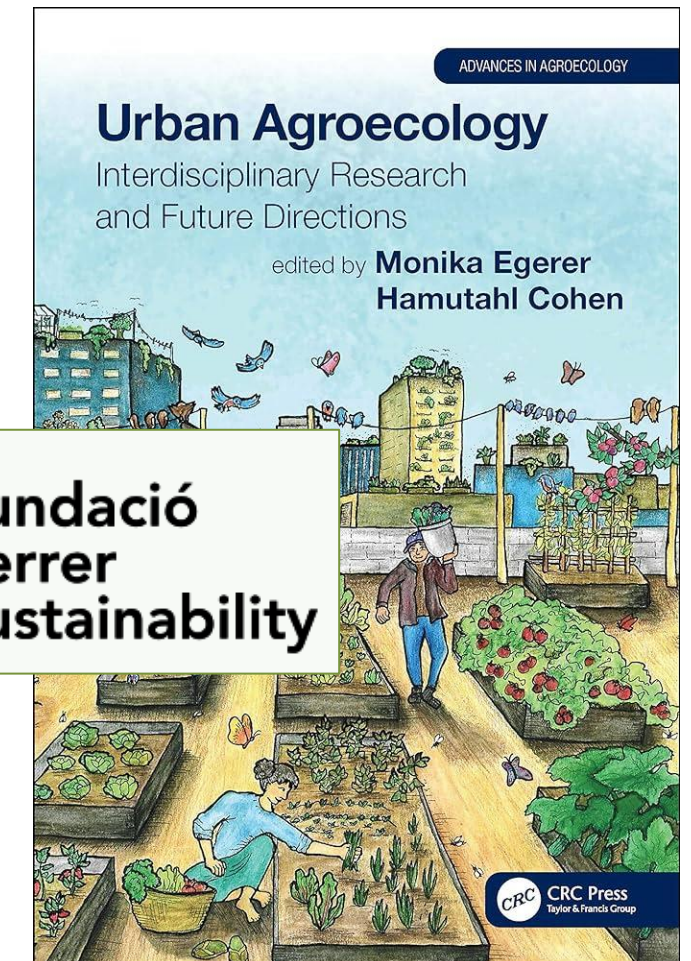
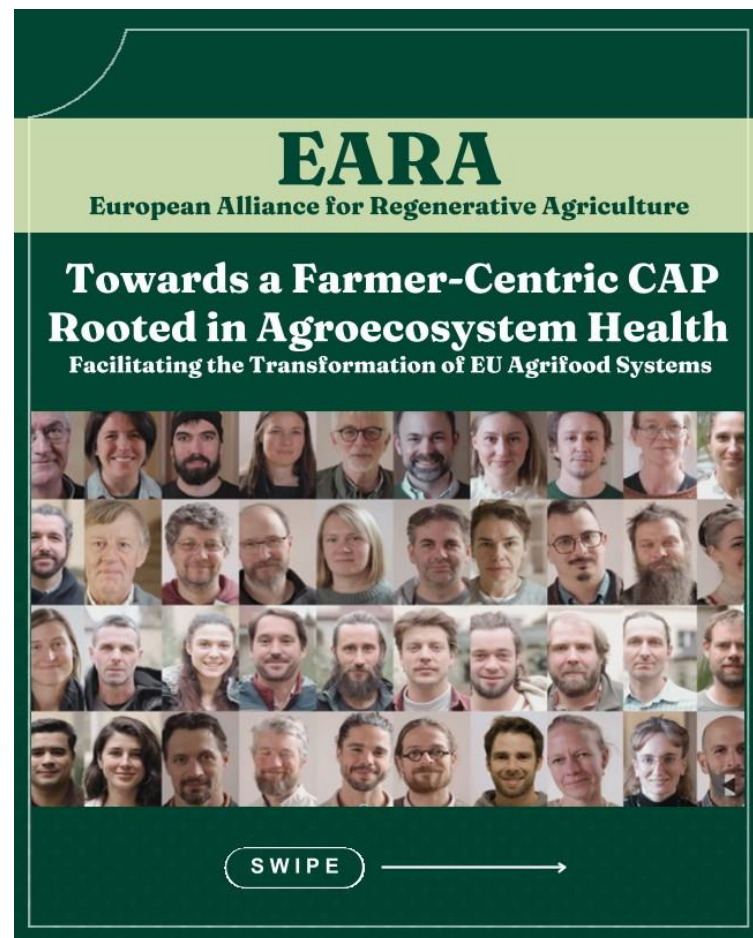
**Climate-
smart
agriculture**

**Organic
agriculture**

**Revitalization of
Rural areas**

**Biodiversity
restoration and
Resilient
Landscapes**





Generalitat de Catalunya		Projectes Fons Climàtic
Nom del projecte		Agricultura regenerativa a Catalunya
Departament promotor		Departament d'Acció Climàtica, Alimentació i Agenda Rural (DACC)
Entitat executora:		Institut de Recerca i Tecnologia Agroalimentàries (IRTA)
☒ Pública ☐ Privada ☐ Sense ànim de lucre		
Data d'aprovació del projecte en la sessió de la Comissió del Fons Climàtic:		20.05.2022
Descripció del projecte		 L'objectiu principal del projecte és donar suport a la transformació de l'activitat agroalimentària catalana i implementar elements de l'agricultura regenerativa, l'agroecologia i la bioeconomia tot mantenint i, fins i tot, incrementant la productivitat agrària. Les accions del projecte contribuiran a la transició sostenible de l'agricultura mitjançant l'augment de la seva competitivitat i resiliència. A través de la introducció de nous models de maneig i pràctiques innovadores s'impulsarà l'adopció de canvis sistèmics en l'agricultura catalana (mediterrània) que permetran l'assoliment de varis Objectius de Desenvolupament Sostenible

<https://www.regenerativeagriculturesummit.com/events/regenerative-agriculture-food-systems-summit-europe#partners>

A close-up photograph of a person's hand, wearing a grey sleeve, sowing seeds into dark, rich soil. A green plant stem is visible on the right side of the frame. A white, house-shaped graphic is overlaid in the center, containing text.

**Want to start
farming carbon
with us?**

Fill out this form to get started.

Marketplace for farmers, pioneer in promoting carbon credits. Aims to absorb 1 trillion tonnes of carbon.

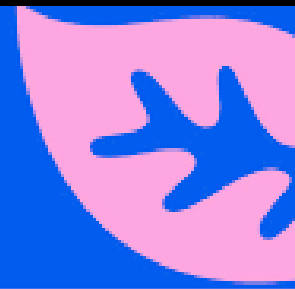
“People with money at the shelves vote for the world they want.”

- Merijn Dols, Senior Director of Open Innovation and Circular Economy for Food , Danone



The Unilever regenerative agriculture principles

with Implementation Guides 2021



Show your customers how sustainable you are



Home Services Contact  

Monetise your farm's green practices



Feeding Us Greenwash:
An analysis of misleading claims in the food sector

Feeding Us Greenwash:
An analysis of misleading claims in the food sector

www.greenwash.com

Summary of the four worldviews on the future of agriculture

	Traditionalists	Agroecologists	Technovegans	Sustainable intensifiers
Approach to technology	Pragmatic	Cautious	Optimistic about new food technology	Optimistic about new farming technology
Trade and economics	Free trade for exports, resist imports	Economies should revolve around local food	Use global food systems to deploy meat and dairy alternatives rapidly	Use trade to let efficient farmers feed the world
Food philosophy	Food security and flavour matter most	Food is culture and identity	Natural is a lie: food can be engineered to be better	Abundance at low cost
Nature and climate	Farmers should do something, but action is mostly for others	Lower yields mean more farmland nature. Avoiding inputs avoids fossil fuels	Making livestock obsolete frees land for more wild nature and carbon removal	Farming intensively frees up land for nature and carbon removal
Diet	No change. Meat is crucial to a healthy diet	Reduce meat consumption by returning to traditional diets	Like for like substitution of animal proteins with alternative proteins	Limited change, eg from beef to chicken

<https://green-alliance.org.uk/wp-content/uploads/2023/12/Crossing-the-Divide.pdf>

DIVERSITY

DIETS

PRODUCTION SYSTEM

AGENTS

VALUE CHAINS

BREEDS

VARIETIES

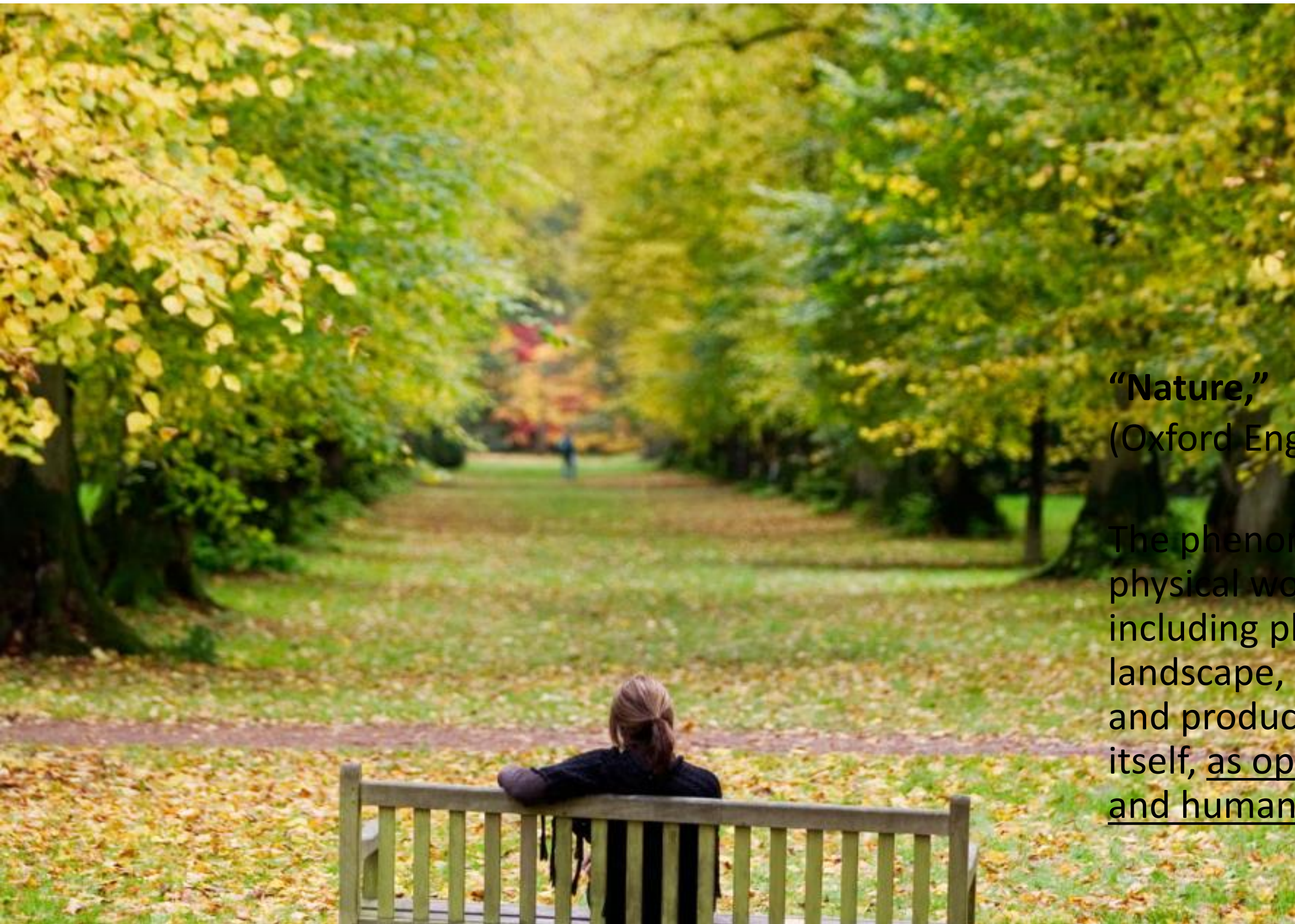
PURPOSES

....

Transforming global food systems involves not only **adapting the current model** to be more ethical and sustainable, but also **doing things as they have never been done before.**

LIMITS

OF OUR CURRENT MINDSET

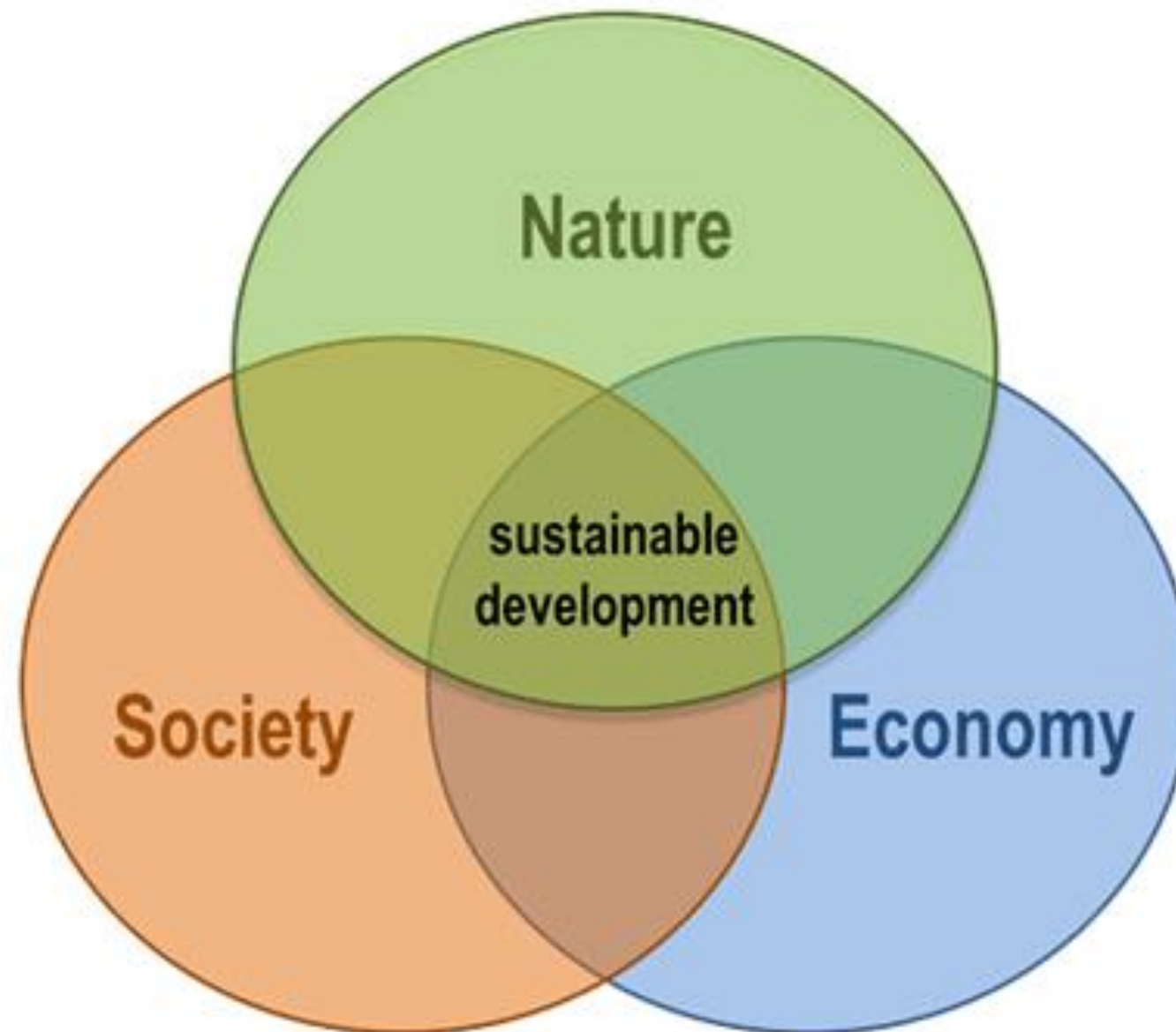


“Nature,”
(Oxford English Dictionary)

The phenomenon of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth itself, as opposed to humans and human creations”.

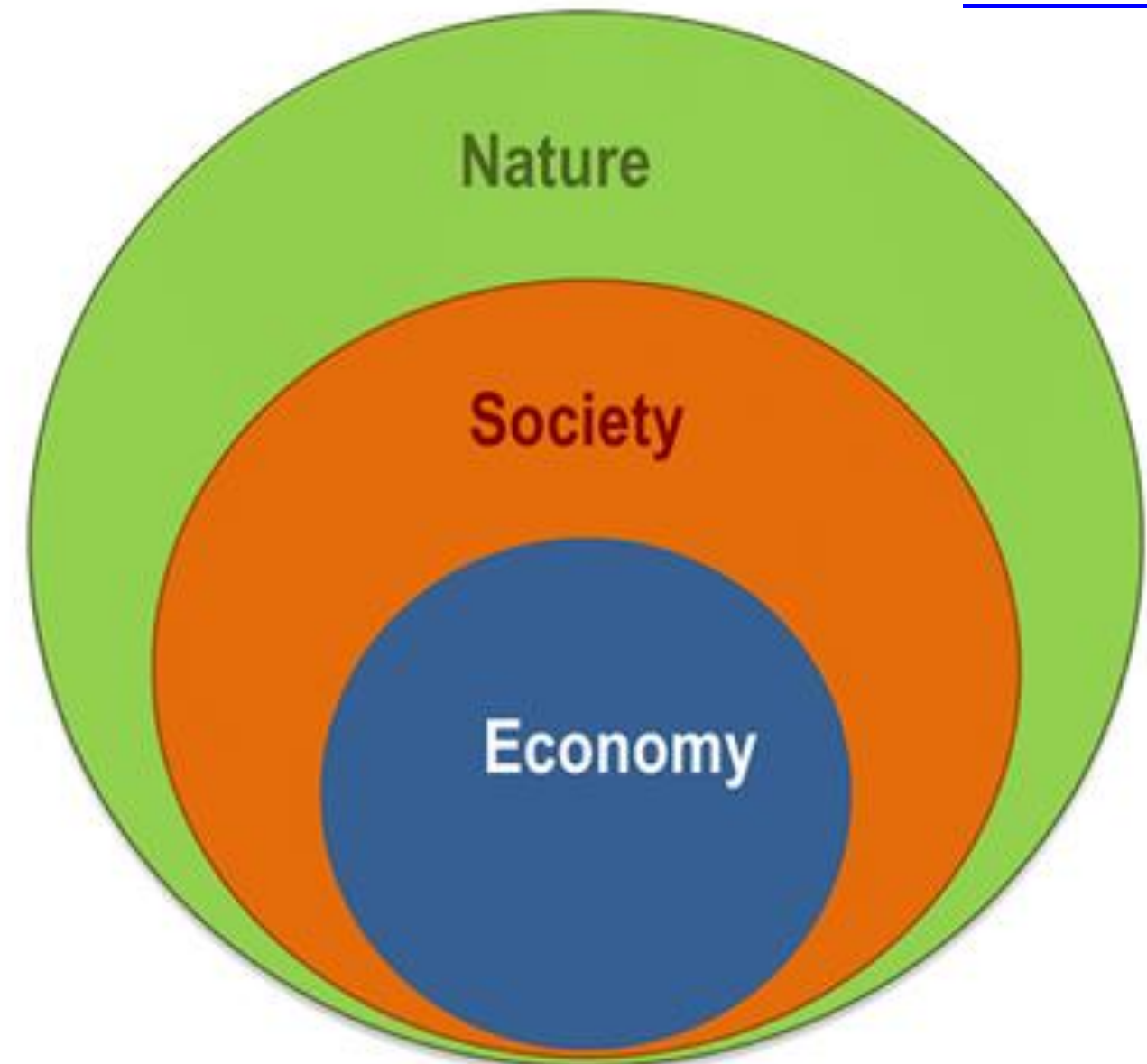
“Our economic system is embedded in the biosphere. If we take down the biosphere, we lose everything, and we don’t have an economic system anymore”

[The Observer](#)



Weak sustainability

Based in Brundtland 1987.



Strong sustainability

Giddings 2002.

El Papa cuestiona el modelo económico actual porque «la Tierra arde» y el capitalismo «mata»

«Se trata de transformar una economía que mata en una economía de la vida, en todas sus dimensiones», ha declarado Francisco ante cerca de mil jóvenes reunidos en Asís



Macron warns of 'end of abundance' as France faces difficult winter

Sombre first cabinet speech after summer break criticised as snub to poor who have already made sacrifices



Emmanuel Macron, second from left



Sustainable agrifood systems for a post-growth world

Steven R. McGreevy^{1,2,3,30}, Christoph D. D. Rupprecht^{4,30}, Daniel Niles^{3,30}, Arnim Wiek⁵, Michael Carolan⁶, Giorgos Kallis^{7,8}, Kanang Kantamaturapoj⁹, Astrid Mangnus¹⁰, Petr Jehlička¹¹, Oliver Taherzadeh¹², Marlyne Sahakian¹³, Ilan Chabay¹⁴, Ashley Colby¹⁵, Jose-Luis Vivero-Pol¹⁶, Rajat Chaudhuri¹⁷, Maximilian Spiegelberg², Mai Kobayashi¹⁸, Bálint Balázs¹⁹, Kazuaki Tsuchiya²⁰, Clara Nicholls²¹, Keiko Tanaka²², Joost Vervoort¹⁰, Motoki Akitsu²³, Hein Mallee²⁴, Kazuhiko Ota²⁵, Rika Shinkai³, Ashlesha Khadse²⁶, Norie Ken-ichi Abe³, Miguel Altieri²⁸, Yo-ichiro Sato²⁴ and Masashi Tachikawa²⁹

Sustainable agrifood systems are critical to averting climate-driven social and ecological disasters, overcoming the challenges of the 21st century. This Perspective outlines principles of sufficiency, regeneration and research efforts that are needed to build a post-growth world in which agricultural production is decoupled from the pursuit of economic growth.

Limits to economic growth

Across the world, decisions on investment and policy are made under the assumption of continuous economic expansion. Fundamental physical limits may soon put an end to this phase of development, as foreshadowed by the 1972 report *The Limits to Growth*.

Thomas W. Murphy Jr

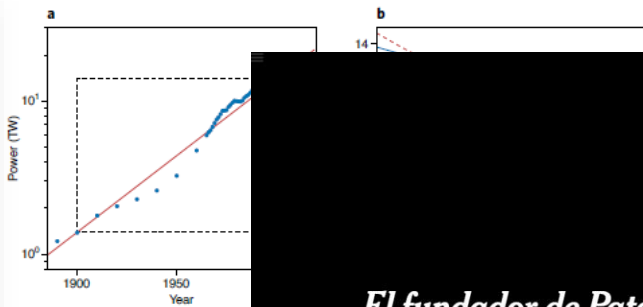
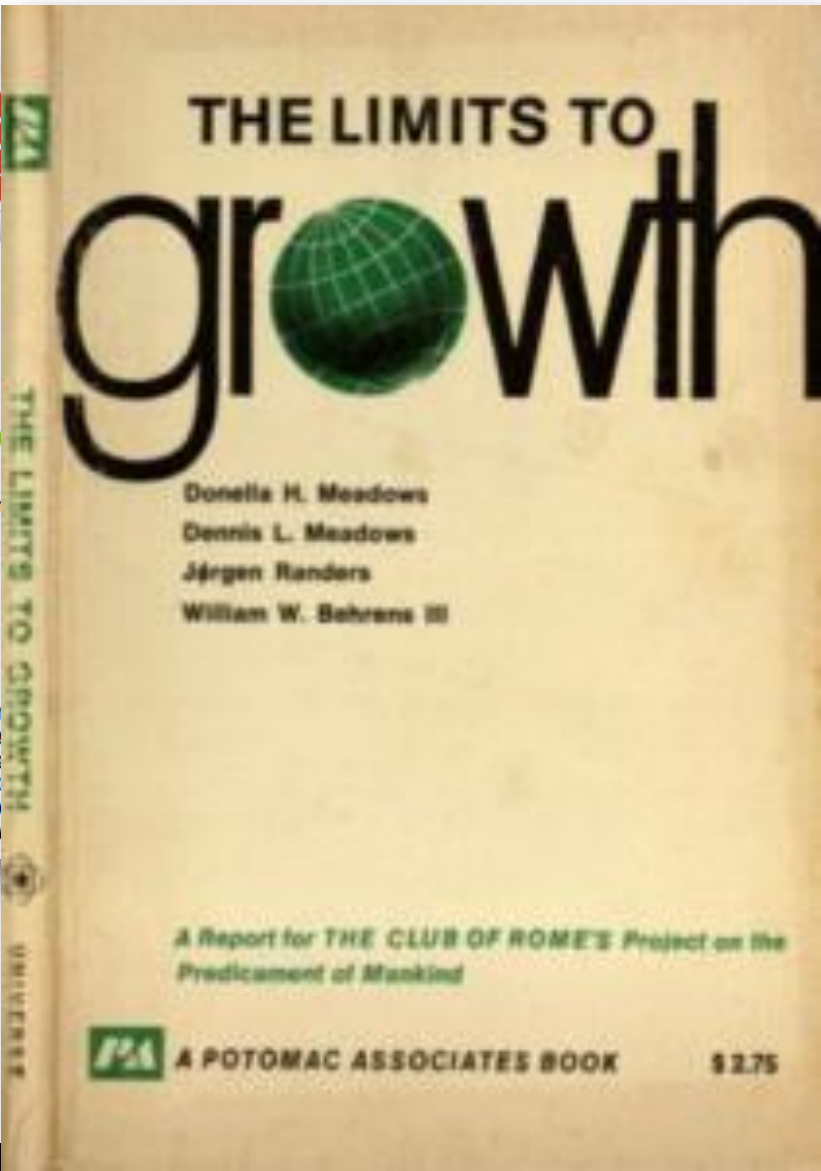


Fig. 1 | Historical energy growth and economic growth. **a**, Historical energy growth on a logarithmic scale over the past century. The red dashed line represents a 2.3% exponential growth. The line is not a fit to the data, but a guide to the eye. **b**, Economic growth on a linear scale over the past century. The red dashed line represents a 2.3% exponential growth. Data taken from refs. 10,11.



El fundador de Patagonia transfirió el control de su empresa para combatir el cambio climático

<https://youtu.be/4TsndZxysts>

‘It’s easier to imagine the end of the world than the end of capitalism’

Fredric Jameson and Slavoj Žižek

Review Article

Cite this article: Diesendorf M, Davies G, Wiedmann T, Spangenberg JH, Hail S (2024). Sustainability scientists' critique of neoclassical economics. *Global Sustainability* 7, e33, 1–13. <https://doi.org/10.1017/sus.2024.36>

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Keywords:
economics; policies; politics and governance

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Sustainability scientists' critique of neoclassical economics

Mark Diesendorf¹, Geoff Davies², Thomas Wiedmann³,
Joachim H. Spangenberg⁴ and Steven Hail⁵

¹School of Humanities & Languages, UNSW, Sydney, NSW, Australia; ²Research School of Earth Sciences, Australian National University, Braidwood, Australia; ³School of Civil & Environmental Engineering, UNSW, Sydney, Australia; ⁴Sustainable Europe Research Institute, Overath, Germany and ⁵Torrens University, Australia, and Modern Money Lab, Australia

Abstract

Non-technical summary. Neoclassical economics (NCE) theory and neoliberal economics practice together form one of the principal driving forces of environmental destruction and social injustice. We critically examine ten key hypotheses that form the foundations of NCE, and four other claims. Each fails to satisfy one or more of the basic requirements of scientific practice. Hence, NCE is fundamentally flawed, is irrational in the common meaning of the word, and should not be used as a guide for government policies. Because NCE is socially constructed, it can be replaced with an interdisciplinary conceptual framework that is compatible with ecological sustainability and social justice.

Technical summary. Neoclassical economics (NCE) is widely regarded as providing theoretical justification for neoliberal notions such as ‘governments should minimize regulation and spending, and hence leave major socioeconomic and environmental decisions to the market’. A large body of literature finds that NCE is largely responsible for environmental destruction and social inequality. As NCE is claimed to be a science and has appropriated terminology

A growing critique



Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com/locate/ecocon



Economics for the future – Beyond the superorganism

N.J. Hagens

Institute for the Study of Energy and Our Future, United States

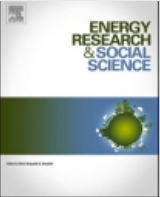
ABSTRACT

Our environment and economy are at a crossroads. This paper attempts a cohesive narrative on how human evolved behavior, money, energy, economy and the environment fit together. Humans strive for the same emotional state of our successful ancestors. In a resource rich environment, we coordinate in groups, corporations and nations, to maximize financial surplus, tethered to energy, tethered to carbon. At global scales, the emergent result of this combination is a mindless, energy hungry, CO2 emitting Superorganism. Under this dynamic we are now behaviorally ‘growth constrained’ and will use any means possible to avoid facing this reality. The farther we kick the can, the larger the disconnect between our financial and physical reality becomes. The moment of this recalibration will be a watershed time for our culture, but could also be the birth of a new ‘systems economics’. and resultant different ways of living. The next 30 years are the time to apply all we’ve learned during the past 30 years. We’ve arrived at a species level conversation.

Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss



Perspective

Modernity is incompatible with planetary limits: Developing a PLAN for the future

T.W. Murphy Jr.^a, D.J. Murphy^b, T.F. Love^c, M.L.A. LeHew^d, B.J. McCall^{e,*}

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^b Associate Professor of Environmental Studies, St. Lawrence University, Canton, NY, USA

^c Professor of Environmental Studies, Linfield University, McMinnville, OR, USA

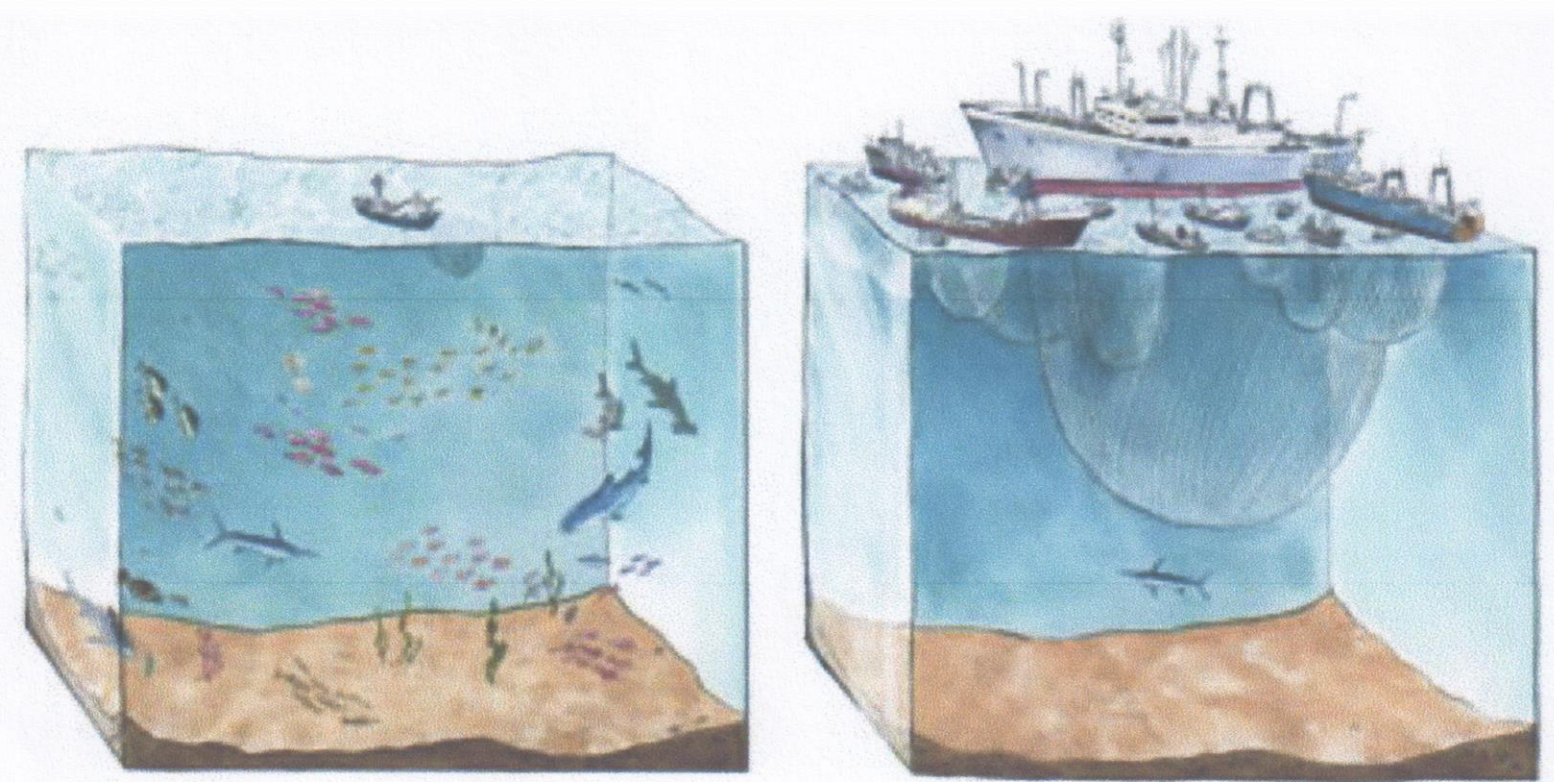
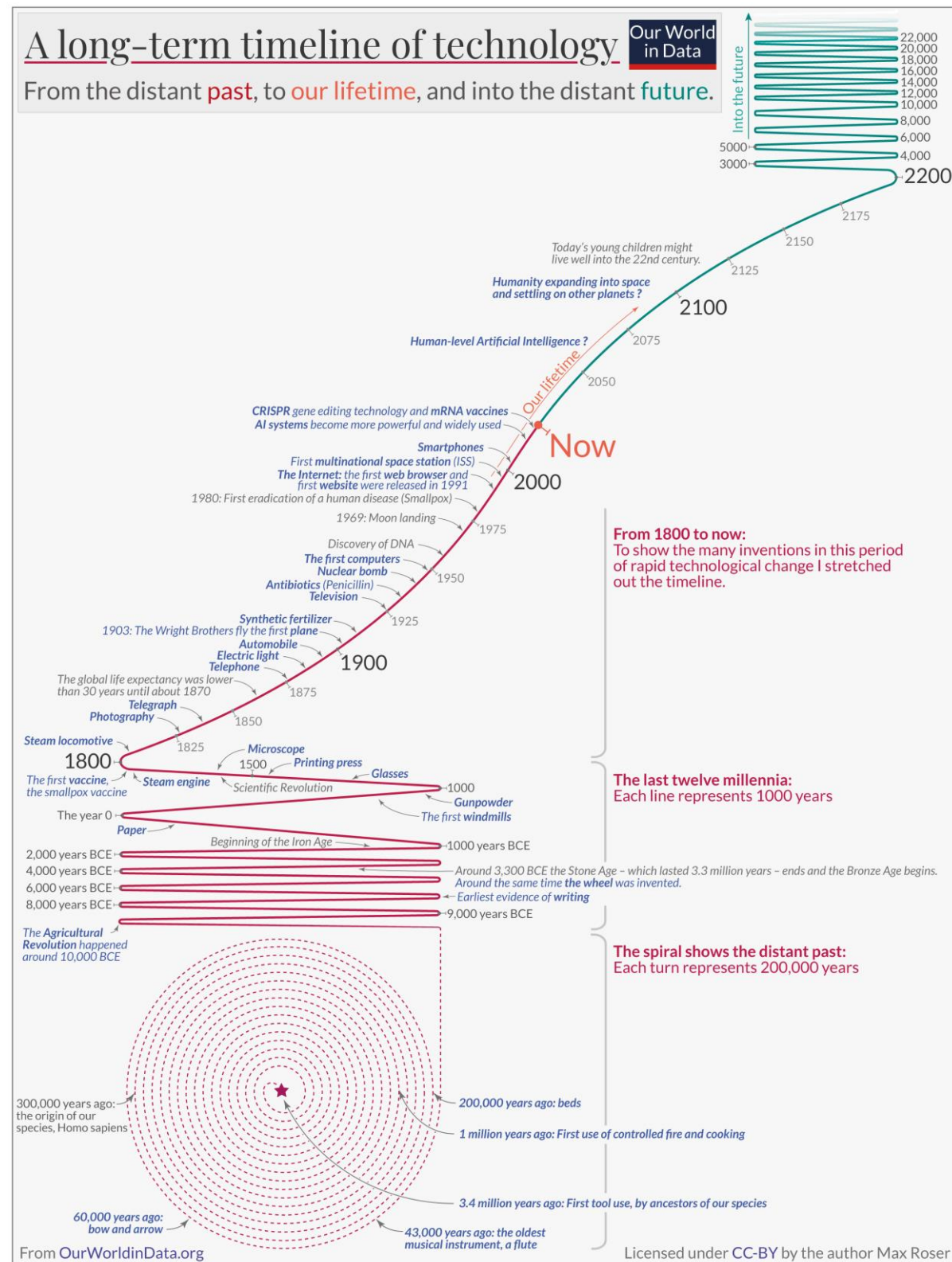
^d Professor of Environmental Studies, Kansas State University, Manhattan, KS, USA

^e Executive Director, Hanley Sustainability Institute, University of Dayton, Dayton, OH, USA

ABSTRACT

This age of modernity is characterized by consistent growth in energy use, economic activity, and resource consumption, and a generally increasing standard of living—albeit inequitably distributed. All currently living humans, and most academic disciplines, have developed in this age, which appears normal and indefinite to us. But modernity has been enabled by the rapid and accelerating expenditure of our one-time inheritance of fossil fuels, and by drawing down the resources and ecosystems of our finite Earth—none of which can be sustained as we transition from a resource-rich frontier to a human-dominated planet. Climate change is often singled out as modernity’s existential crisis, but it is only one of a series of interlocking challenges constituting an unprecedented predicament that must be understood and mitigated in order to live within planetary limits. While energetic and technological challenges attract significant attention, arguably the greatest challenges are conceptual or even cultural. In particular, as we review in this Perspective, today’s political economy has been designed to value short-term financial wealth over the real treasure of Earth’s functioning ecosystems, to discount the future at the expense of the present, and to demand infinite exponential growth...which is simply impossible on a finite planet. Given all this, humanity should view its present overshoot-prone trajectory with tremendous suspicion, humility, and concern. We call for the establishment of a transdisciplinary network of scholars from across the entire academic landscape to develop a global understanding of planetary limits and how humanity can adapt to the associated realities. We present a set of foundational principles to serve as a starting point to anchor this network and drive a new area of focused inquiry to develop a shared vision of viable future paths.

We need a new economic model



Empty

Full

<https://greattransition.org/publication/economics-for-a-full-world>

- **Redesign of our current sociotechnical systems**
- **Change of values and cosmovision**



KOHEI SAITO
El capital
en la era
del Antropoceno

Una llamada a liberar la imaginación para
cambiar el sistema y frenar el cambio climático

SINE
QUA



Reality Roundtable: Unlearning Economics



Unlearning Economics: Jon Erickson, Josh Farley, Steve
Keen, Kate Raworth

5 Economists Redefining... Everything. Oh Yes, And They're Women (Forbes)



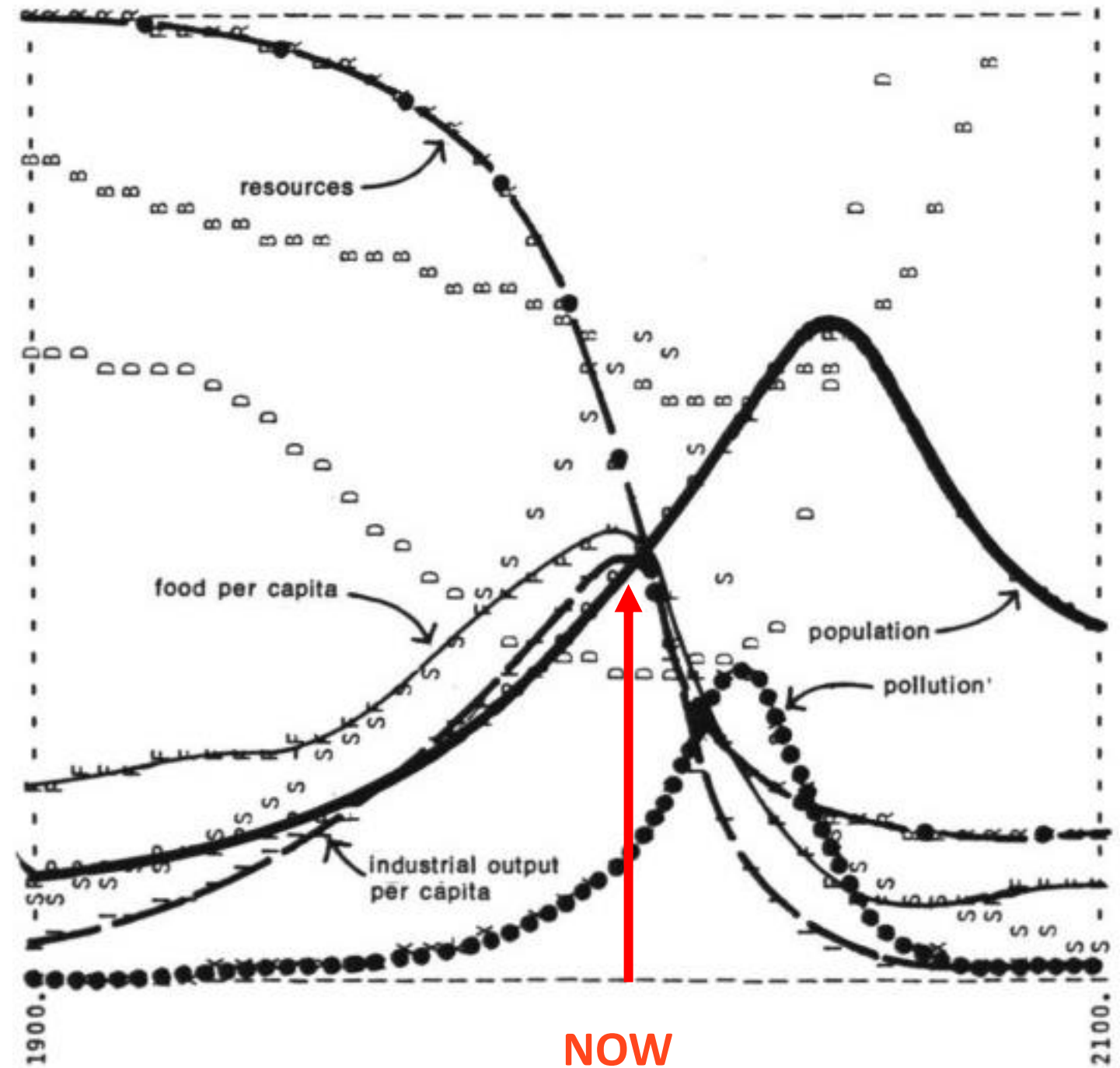
They are revolutionising their field by questioning the meaning of everything from ‘value’ and ‘debt’ to ‘growth’ and ‘GDP.’

From top left: Mariana Mazzucato, Carlota Perez, Kate Raworth, Stephanie Kelton, Esther Duflo. 20-first

We need to discuss the underlying driver: Growth as the **MEGA-**rule

Meadows and Meadows (2007):

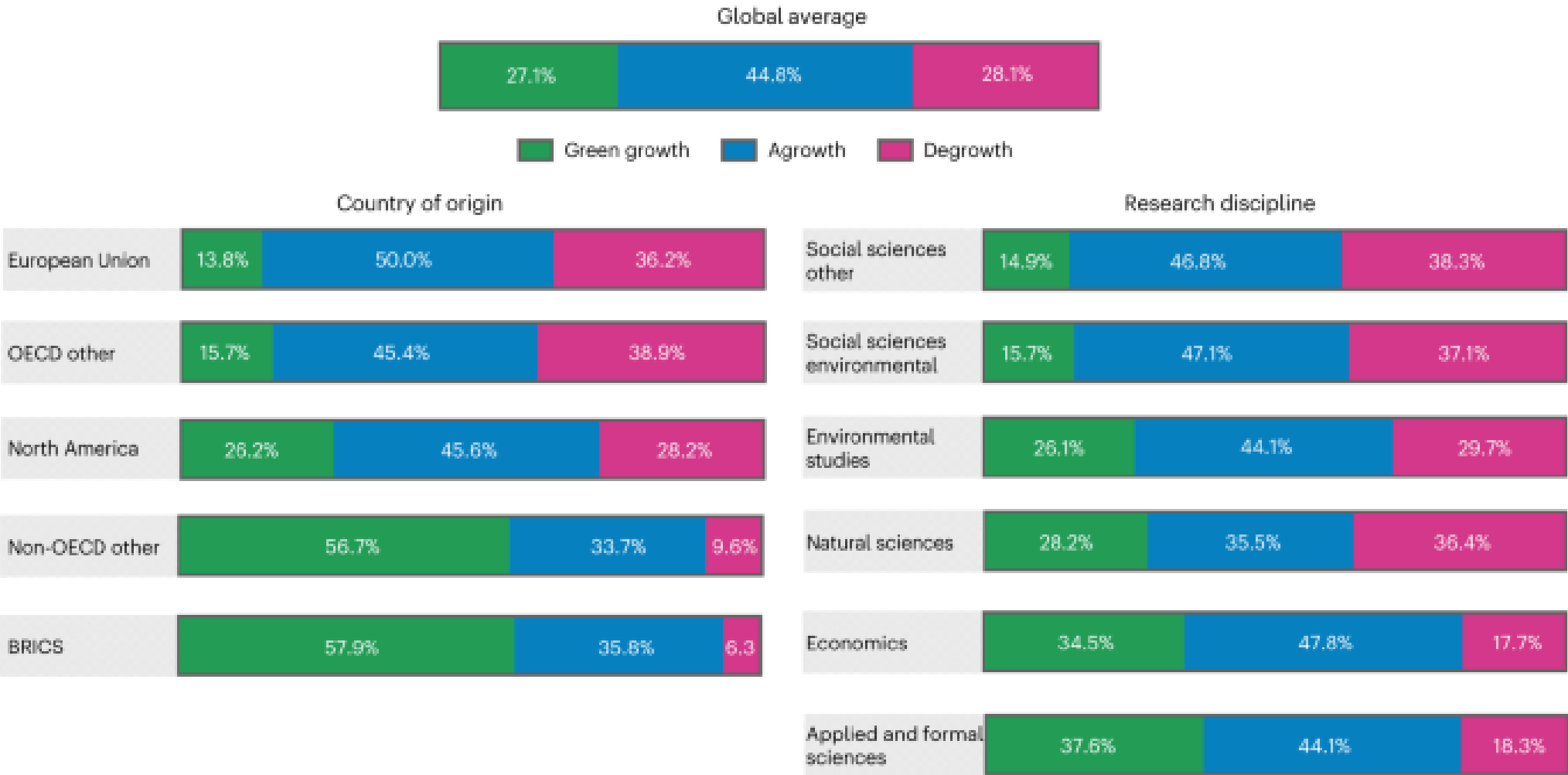
“There is a primary cause of the Continuous Critical Problems: It is growth. Exponential growth of energy use, material flows, and population against the earth’s physical limits. That which all the world sees as the solution to its problems is in fact a cause of those problems.”



The "standard" world model run assumes no major change in the physical, economic, or social relationships that have historically governed the development of the world system. All variables plotted here follow historical values from 1900 to 1970. Food, industrial output, and population grow exponentially until the rapidly diminishing resource base forces a slowdown in industrial growth. Because of natural delays in the system, both population and pollution continue to increase for some time after the peak of

Let's not call it Degrowth ...

- The new economic paradigm called post-growth argues that the pursuit of infinite economic growth is incompatible with planetary boundaries. In other words, alternative economic frameworks are needed to achieve long-term sustainability and well-being.
- Post-growth scholarship has evolved and diversified in a variety of perspectives that can fall into two main categories: degrowth and agrowth*.
- 73% of the 764 researchers surveyed prefer options such as agrowth or degrowth to green growth policies,
- The degree of scepticism varies significantly depending on the country and research discipline of the respondents



“Biophysical limits indicate that Technology-driven Green Growth cannot deliver what it promises”

nature sustainability

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Brief Communication | Published: 07 August 2023

Shades of green growth scepticism among climate policy researchers

[Lewis C. King](#) , [Ivan Savin](#) & [Stefan Drews](#)

[Nature Sustainability](#) (2023) | [Cite this article](#)

1503 Accesses | 312 Altmetric | [Metrics](#)

Is Green Growth Possible?

[Jason Hickel](#)  & [Giorgos Kallis](#)

Pages 469–486 | Published online: 17 Apr 2019

 Cite this article  <https://doi.org/10.1080/13563467.2019.1598964>

PLENARY 3

Addressing the limits of resource consumption:
towards a resilient economy



“Is the economy, stupid!!!”

“We must not forget that the big levers exist at the system level, it is the system that defines most of the options and creates the incentives on which we react as consumers”

PLENARY 4

Understanding the biophysical limits to growth to
build an economy that respects planetary boundaries



*“We have to start looking at the system and look for these **leverage points**, perhaps outside the areas in which we usually work and the networks we are connected to. Otherwise, we won't be addressing the root cause of the problems if not just the symptoms, and **the time to treat just the symptoms has run out.**”*

- <https://www.youtube.com/playlist?list=PLCsKDAfAp2L1V3CyZokKQbfCJRZ7hldh7>

Is Sustainable/Green Growth an oximoron?



[https://www.europarl.europa.eu/RegData/etudes/STUD/2023/747108/EPRS_STU\(2023\)747108_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2023/747108/EPRS_STU(2023)747108_EN.pdf)

Source: EPRS illustration by Samy Chahri, based on text by Jacopo Giuntoli and Luisa Marelli, JRC.

Rewilding Markets

Why Markets Are Sustainability's Next Giant Leap

After decades in which businesses—plus their brands, chains—have been targeted, our next challenge is to

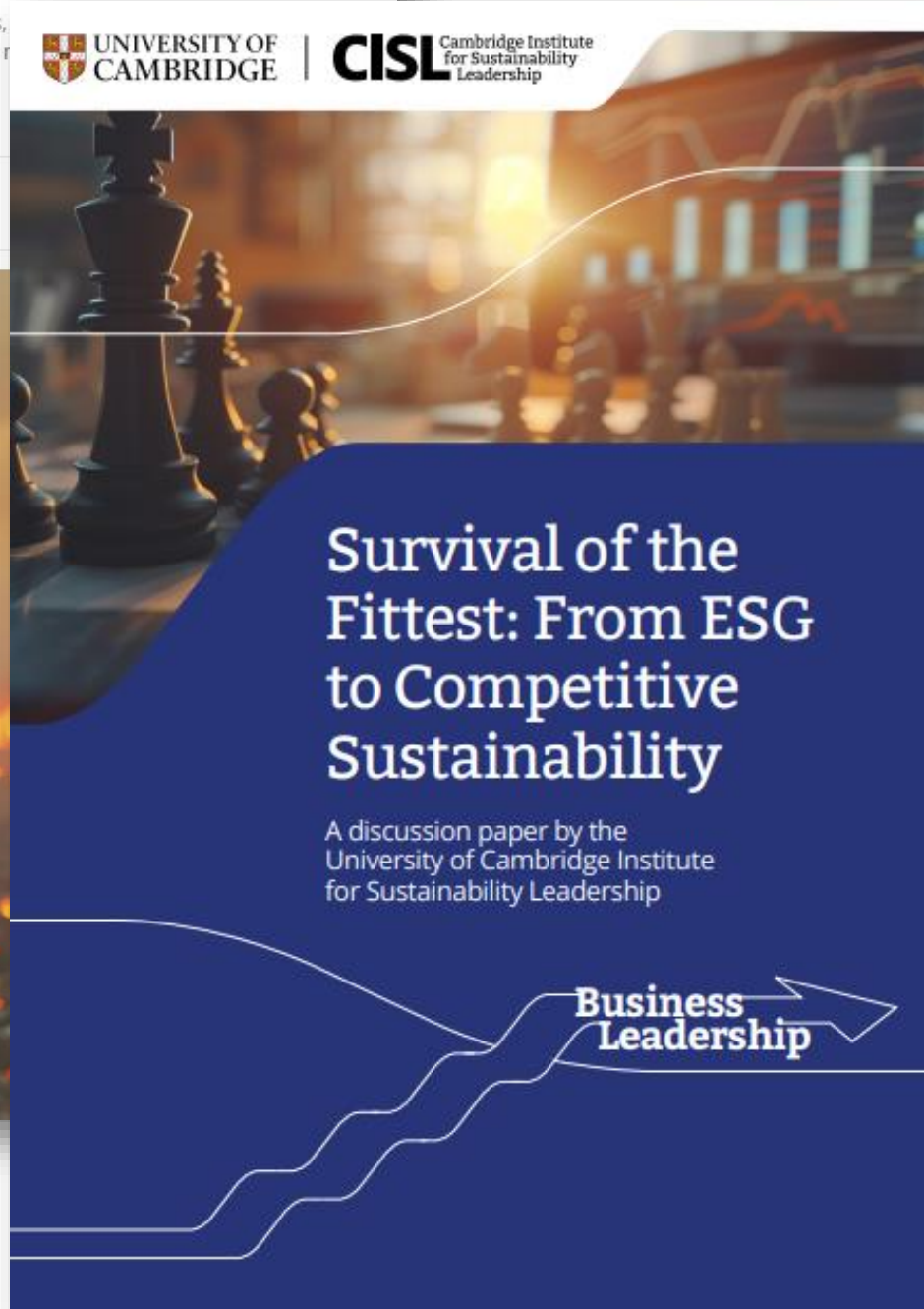


JOHN ELKINGTON
AUG 13, 2024

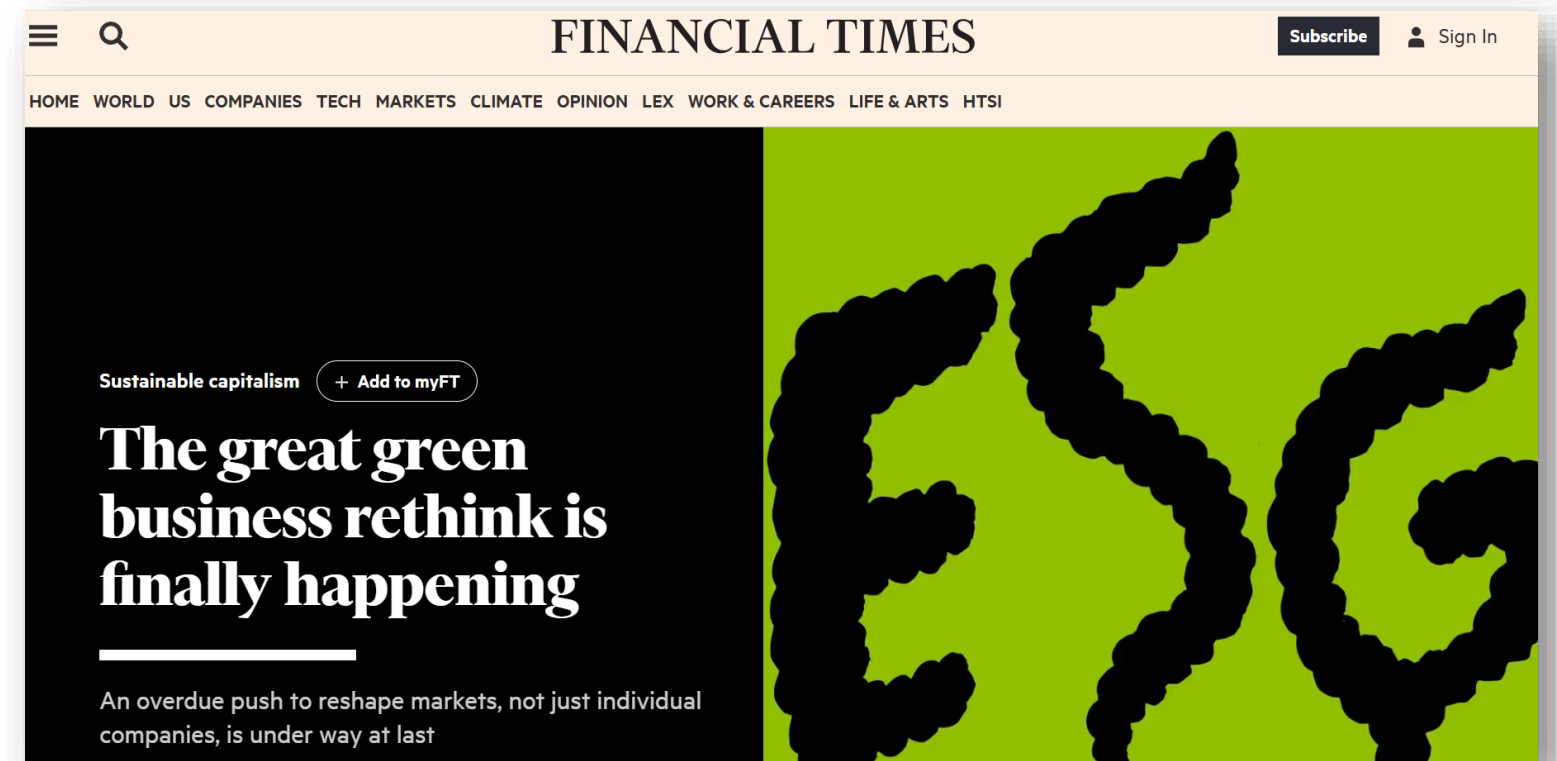
25

6

2



From ESG to Transformative Finances



We need to finance transformation and to transform finances

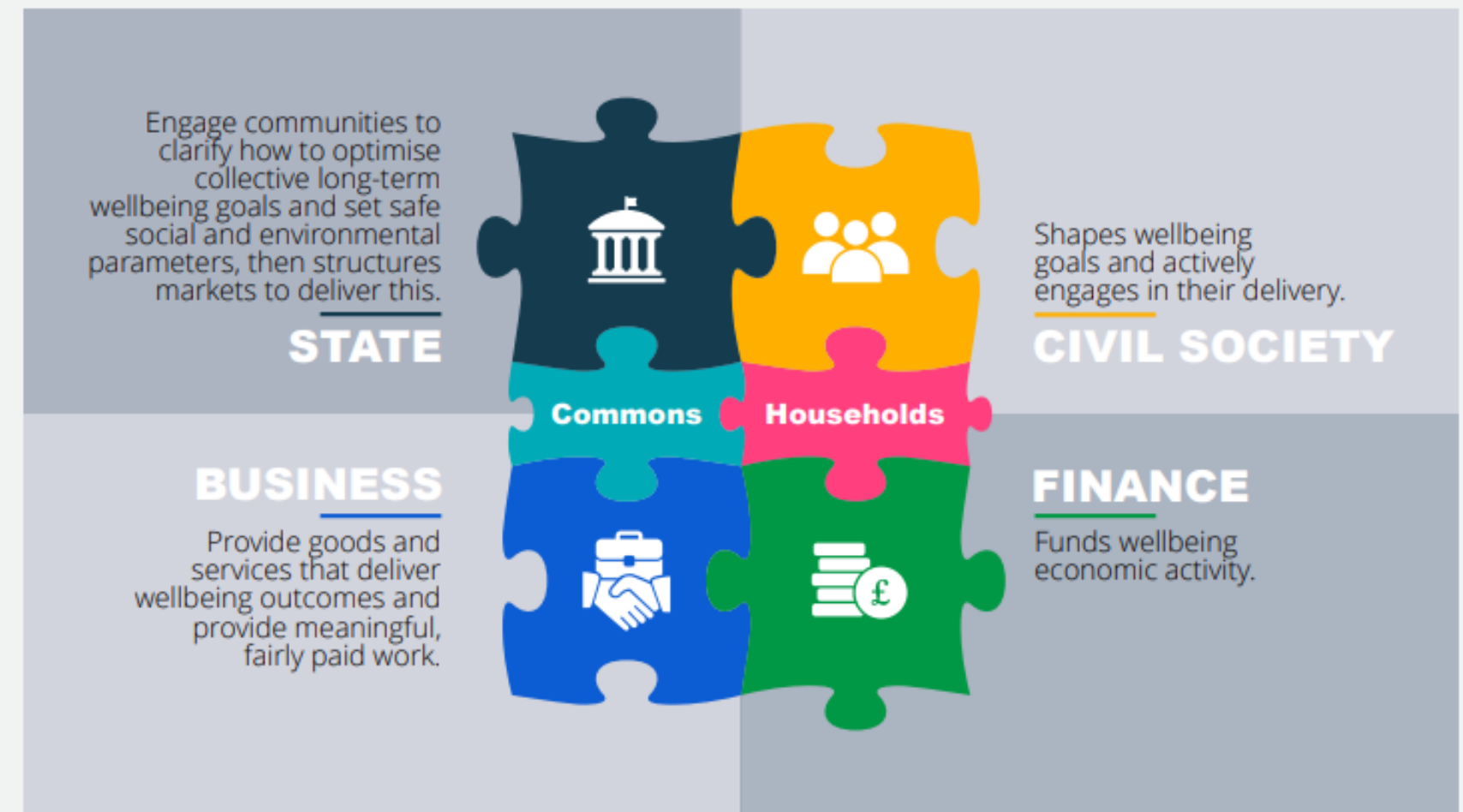
RE-IMAGINING A NEW ECONOMY

THAT WORKS FOR ALL PEOPLE
AND THE PLANET



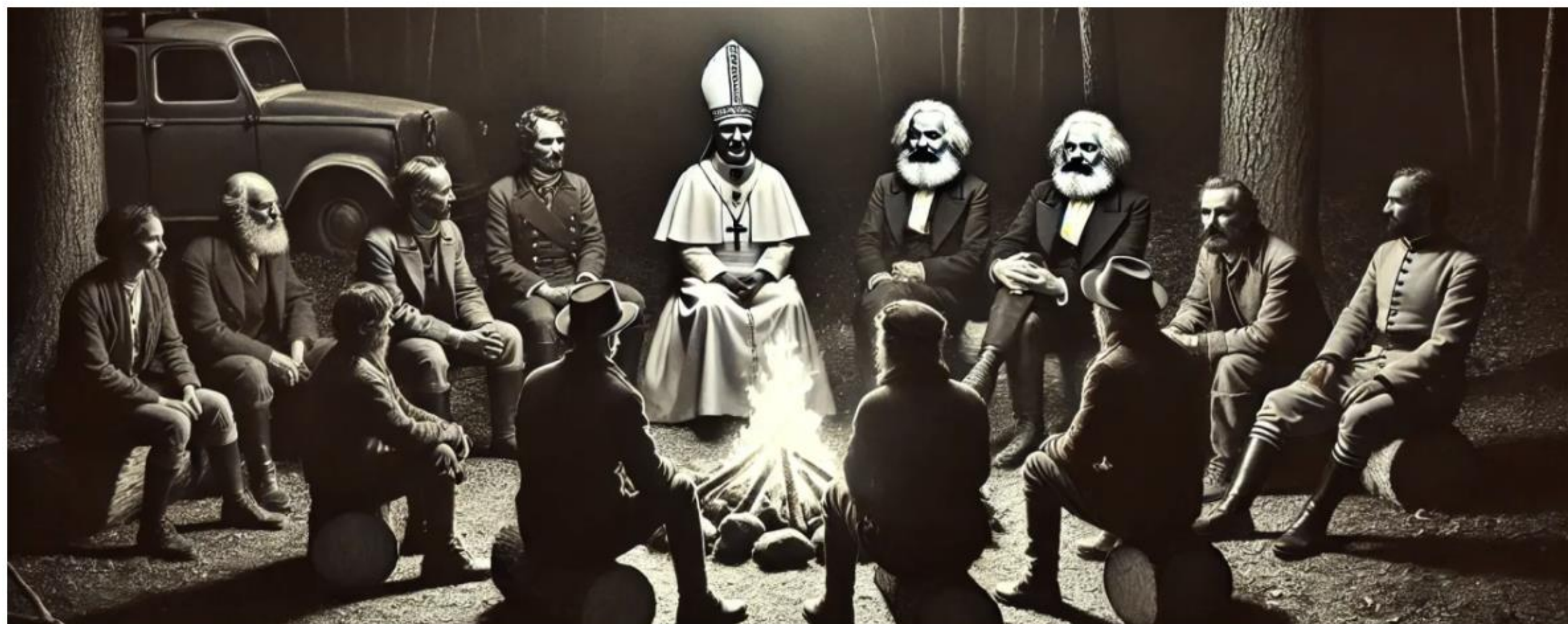
What might a new economy look like?

There is a diverse range of economic approaches where the economy serves the wellbeing of people and the planet, referred to here as a new economy. This recognises how people are a part of—and dependent on—nature and each other for their flourishing. In a new economy each economic actor has important interdependent functions to play, that can be summarised as:



IN NEED OF

NEW NARRATIVES



#28 Narratives



Hans Stegeman 

Chief Economist Triodos Bank | Group Director Impact & Economics |
Columnist | Author | Speaker



<https://www.revista-triodos.com/articulos/2024/hans-stegeman-economia-postcrecimiento>
[28 Narratives](#)



CAPITAL INSTITUTE

Introduction to Regenerative Economics

Reimagine our economy as a source of
equitable wellbeing throughout the world
while preserving ecological harmony

8-Week Internationally Acclaimed Online
Course Hosted by John Fullerton

[WATCH THE TRAILER](#)



GDP Growth vs PROSPERITY More vs SUFFICIENT



Más allá de la sostenibilidad: diseño de culturas regenerativas

Dr. Daniel Christian Wahl (contact@danieldanielwahl.com)

Diseño de sistemas vivos

Presta atención a calidades y cantidades
Efectividad: hacer lo correcto
Informado por una visión sistémica de la vida
Pensamiento holístico en patrones y principios

Los ODSs como puente hacia un impacto regenerativo?



Desarrollo
Regenerativo

Usando flujos de renovables

Agotando reservas de energía fósil

Desarrollo
Degenerativo

Daniel
Wahl

#Glocalisers
webinar
series

Designing
for Regenera
Planetary Health 1:08:39



8a trobada anual sobre indústria i
innovació de Viladecans

IND+I
INSIGHTS

<https://www.youtube.com/watch?v=drY0L-wAop8&t=1072s>

https://www.youtube.com/watch?v=uNS_8m7C3EI

Designing Regenerative Cultures



Daniel Christian Wahl

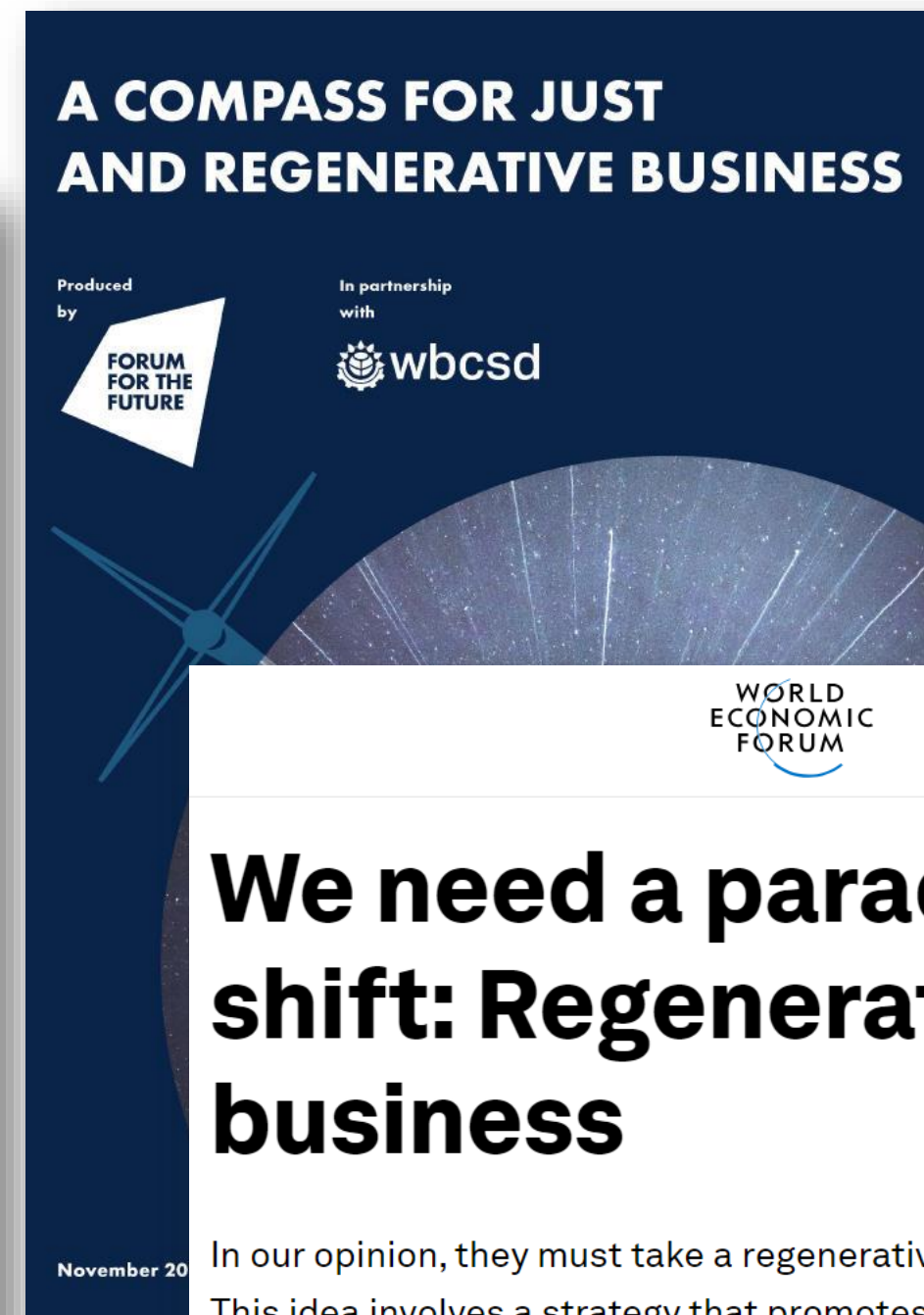
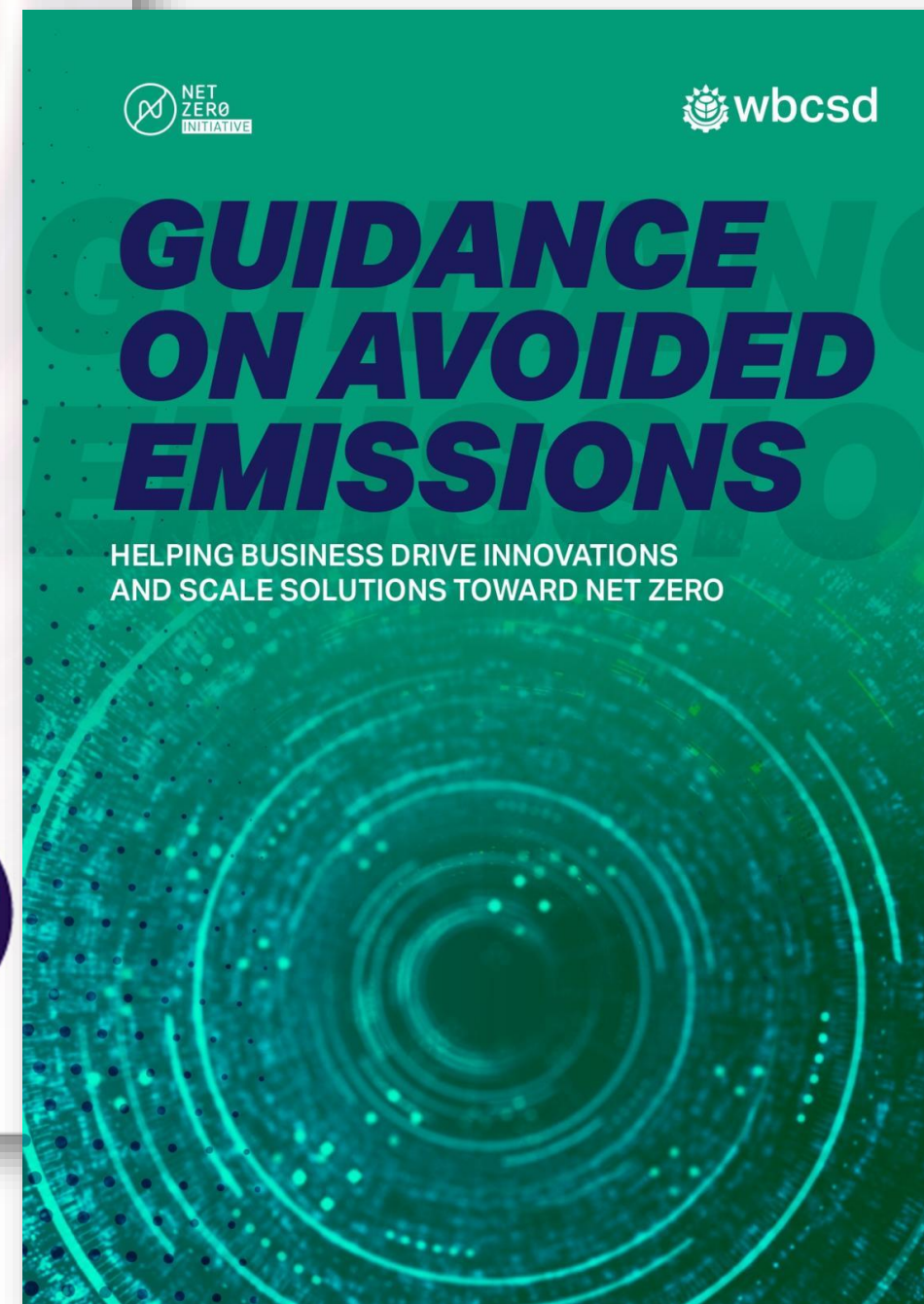
Can regenerative economics & mainstream business mix?

Is it even possible to create regenerative businesses in a degenerative economic system?

Instead of obsessing over quick answers, **shouldn't we try to ask the right questions ?**

<https://medium.com/activate-the-future/can-regenerative-economics-mainstream-business-mix-ef2f8aafa8d4>

<https://medium.com/nyc-design/introduction-to-design-for-human-and-planetary-health-8f4c82a94db3>



We need a paradigm shift: Regenerative business

In our opinion, they must take a regenerative approach to business. This idea involves a strategy that promotes the restoration and regeneration of natural resources and social systems. It goes beyond sustainability and seeks to create positive impacts on the environment, society and economy.

World Business Council for Sustainable Development

<https://www.wbcd.org/Overview/About-us/Vision-2050-Time-to-Transform>

<https://www.weforum.org/agenda/2023/03/regenerative-business-sustainability/>



“A Hoax”

“To acknowledge its reality is to face vulnerability, loss and uncertainty. By naming it a hoax, Trump protects his audience from pain. He offers a simpler, more comforting story: there is no problem, and if there is, it has been fabricated by others with ulterior motives. The burden of responsibility evaporates, and the reckoning with the loss of privileges is avoided.”

[A psychological perspective on the theatre of lies](#)



TRANSFORMATION

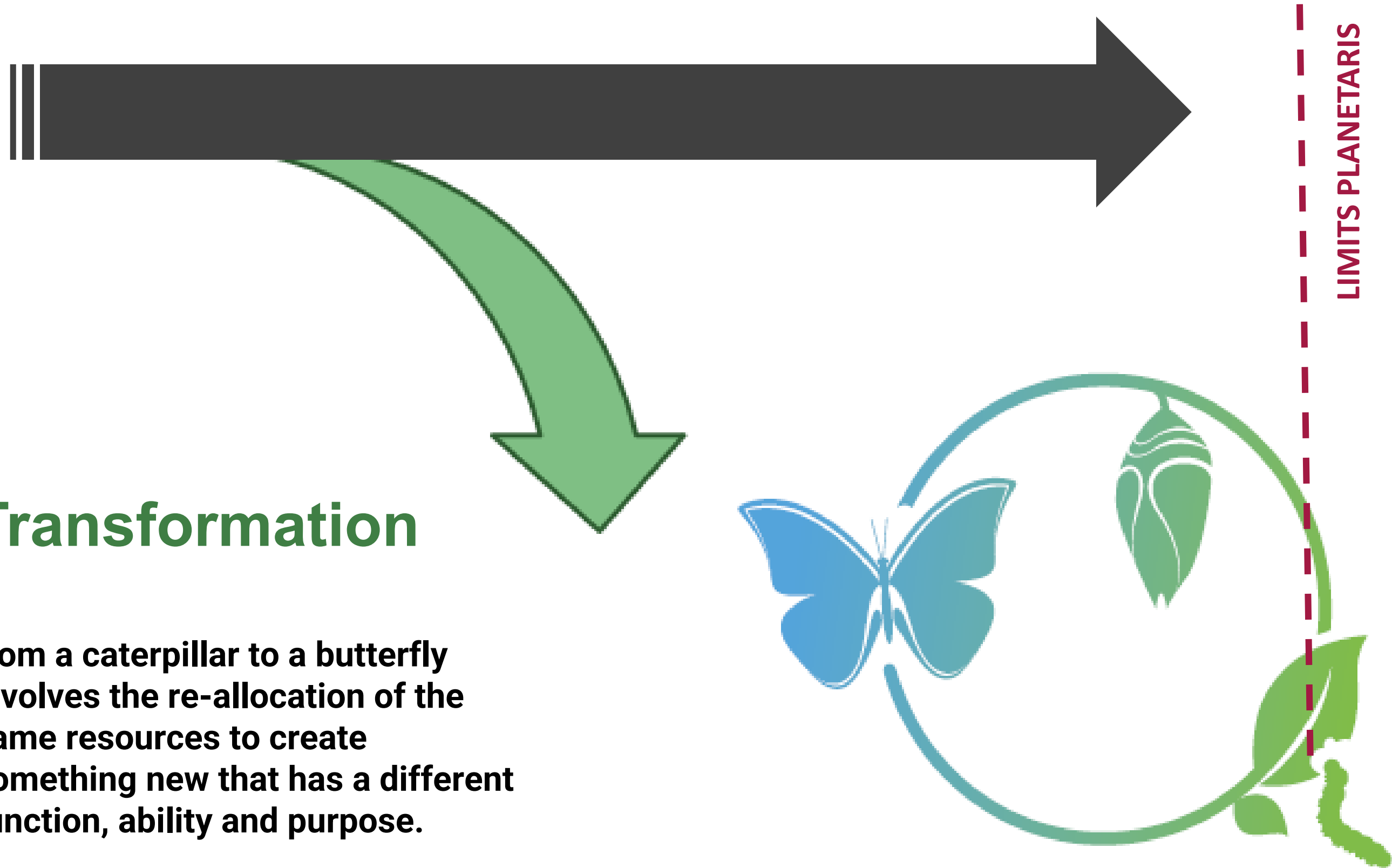
SECOND DEEP TRANSITION

A different kind of change

	Adjust	Reform	Transform
Core Questions	Are we doing things right?	What are the right things to be doing?	What is right?
Purpose	Improve performance	Change the system & its parts	Create previously unimagined possibilities
Power & relationship	Confirms existing rules	Opens rules to revision	Enable new ways of thinking about power
Action logic	Project implementation	Piloting	Experimenting
Typical actions	Copying, duplicating, mimicking	Changing policy, adapting	Visioning, experimenting, inventing
Tools logic	Negotiation logic	Mediation logic	Envisioning logic

Table 1: Different kinds of change (modified from Waddell 2011).





Transformation

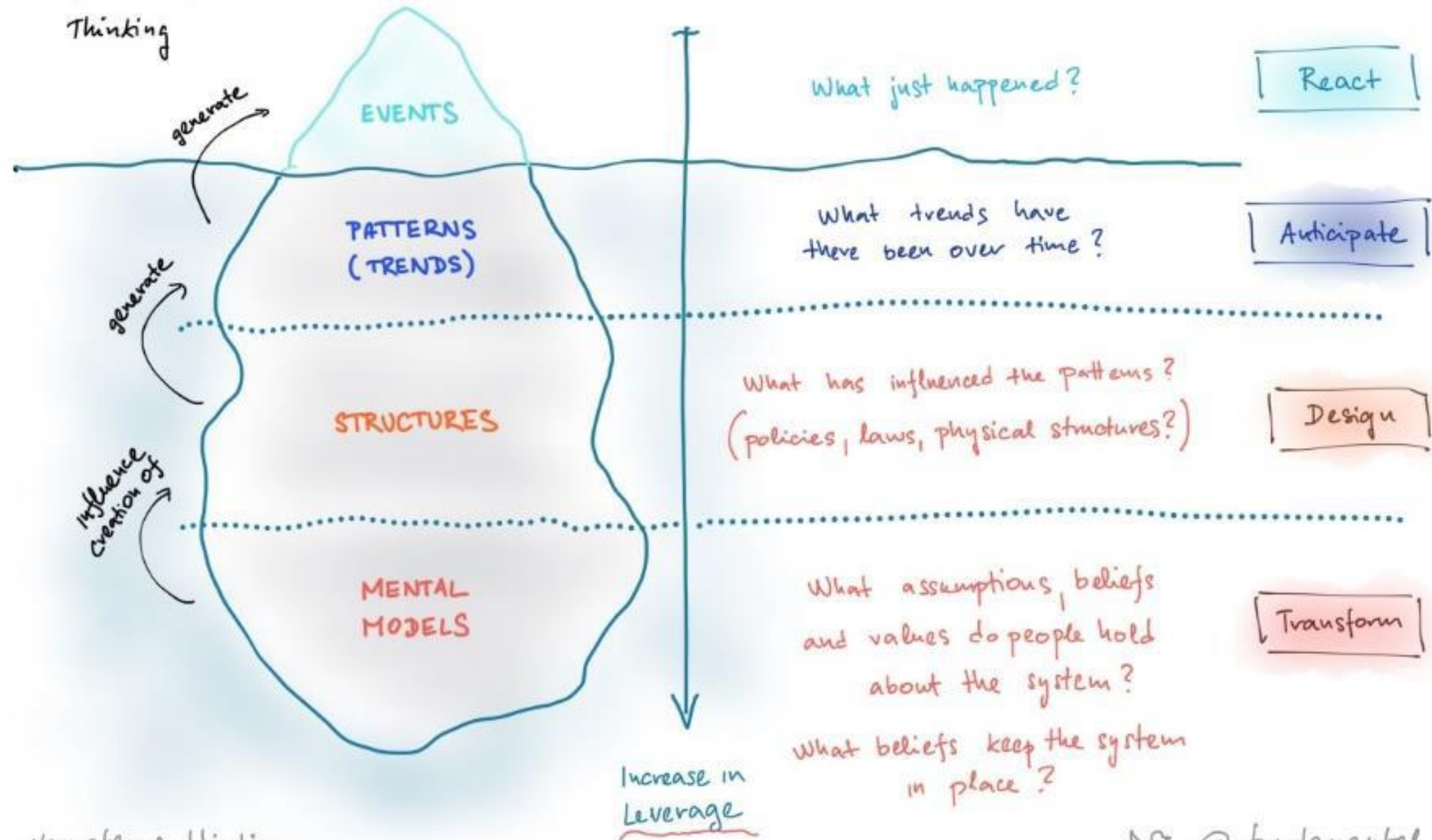
from a caterpillar to a butterfly involves the re-allocation of the same resources to create something new that has a different function, ability and purpose.

SYSTEMS THINKING

- ICEBERG -

APPROACH THE PROBLEMS ON RELEVANT
LAYER AND DISCOVER ROOT CAUSES

4 levels of
Thinking



#systems-thinking

@fundamentals

A new DeepTransition

BEGINING OF
AGRICULTURE
(7.000 BC)

INDUSTRIAL
REVOLUTION

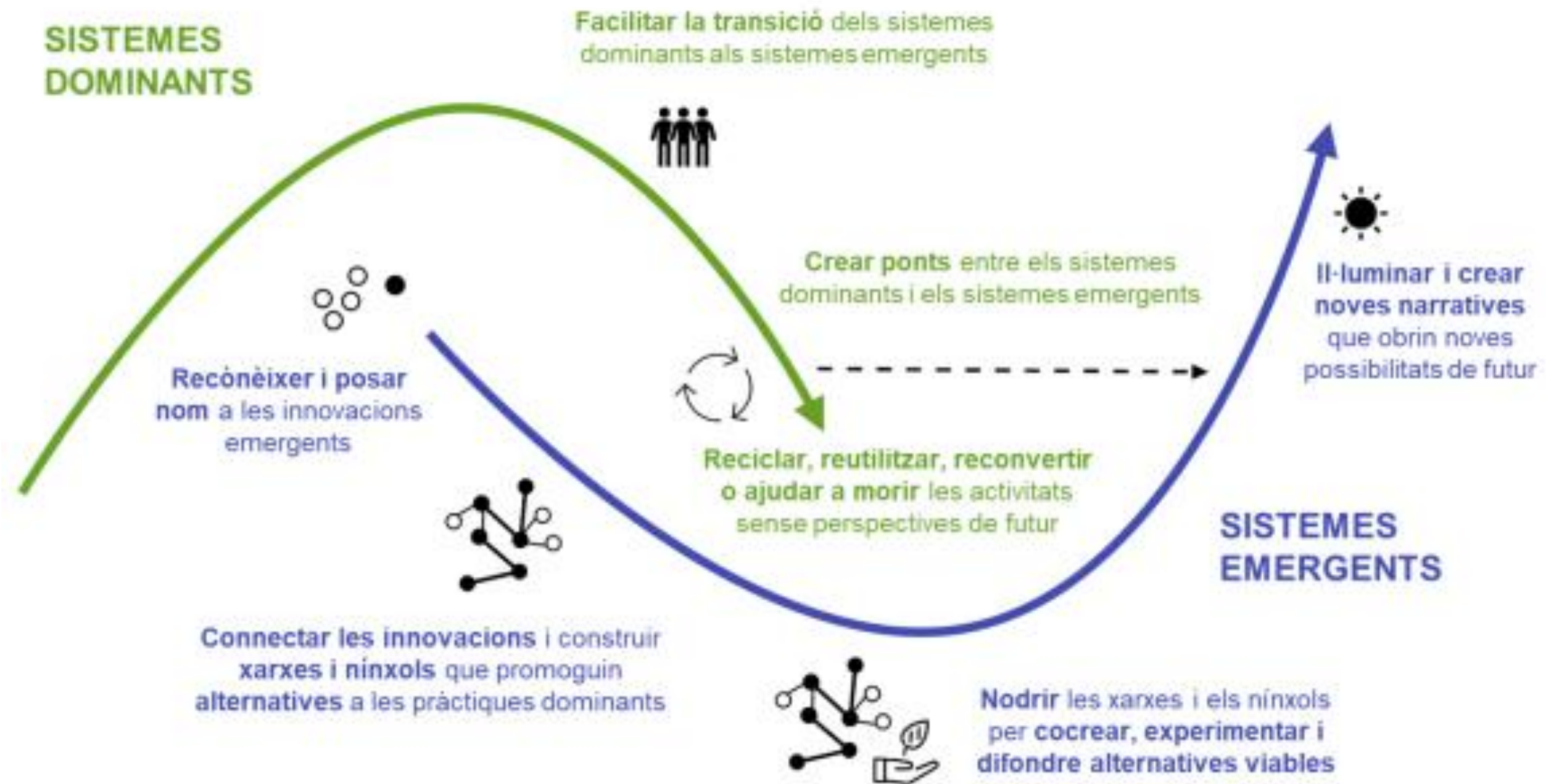
GREEN
REVOLUTION

Transformative Innovation



PLANETARY BOUNDARIES

Two loops Model



“Don’t fight the existing systems, create an alternative system that makes the old one obsolete.”

Buckminster Fuller

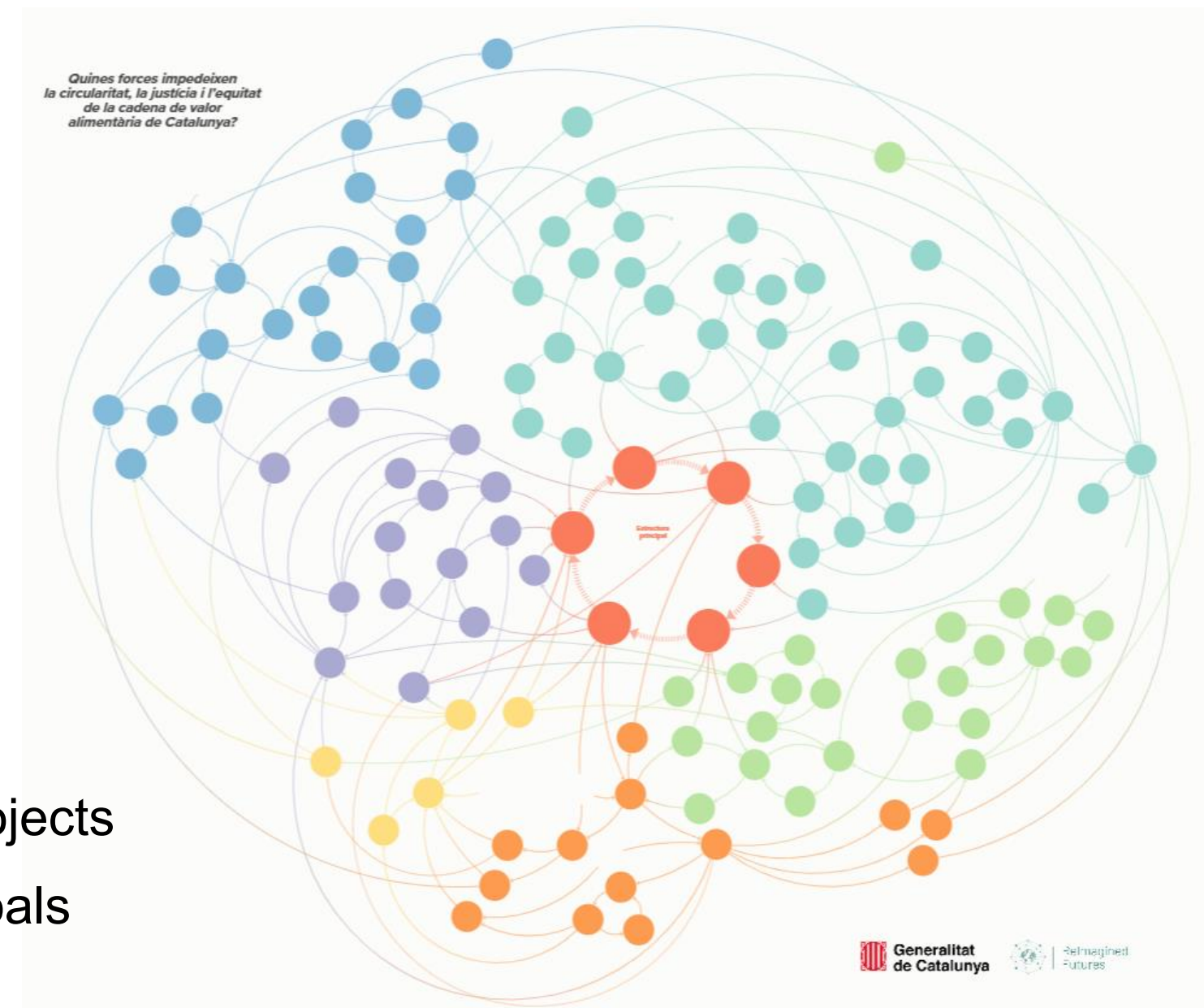
Why a different approach is needed for food systems transformation?

Food systems are complex socio-technical systems entwining health, environment, economy, culture:

- ❑ Linear policy tools and silver-bullet solutions often fail
- ❑ Power, values and lock-ins shape what is possible

Shared Agendas are:

- ❑ Place-based and co-created
- ❑ Systemic and adaptive
- ❑ Rooted in coalitions, not isolated actors
- ❑ Tackle root causes, not symptoms
- ❑ Provide space to develop, test and connect alternatives
- ❑ Build portfolios of complementary actions, not single projects
- ❑ Link short-term initiatives to long-term transformation goals



Food System Transformation

- ❑ In the food sector, a profound systemic transformation is increasingly recognized as necessary and urgent.
- ❑ Since the 2021 Food Systems Summit, complexity approaches have gained traction.
- ❑ Addressing food challenges requires a place-based approach,
- ❑ Solutions must be developed with an active participation of local stakeholders.
- ❑ However, applying these concepts in real practice is still very challenging.

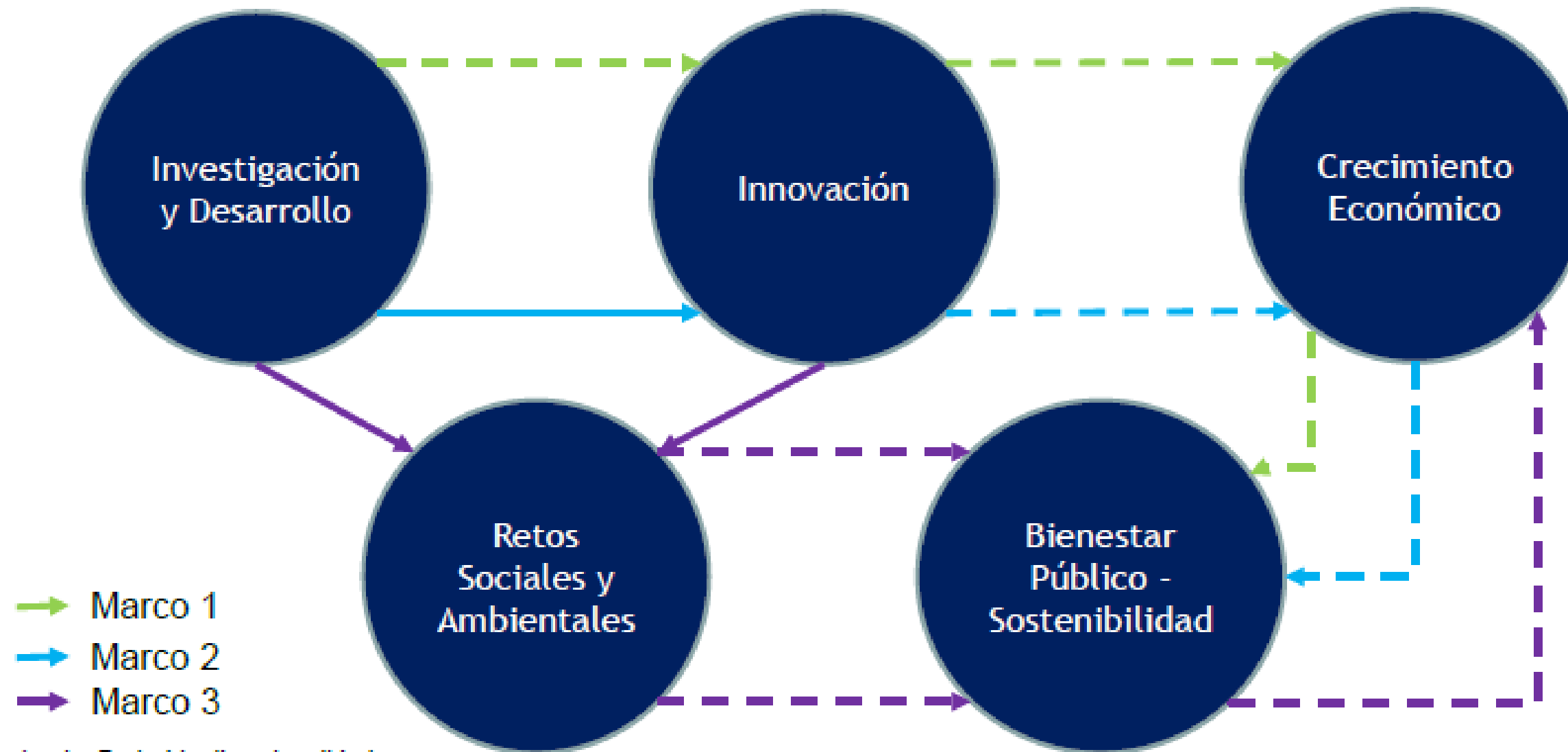


UNITED NATIONS
FOOD SYSTEMS
SUMMIT 2021

TRES MARCOS DE INNOVACION

OFERTA

DEMANDA

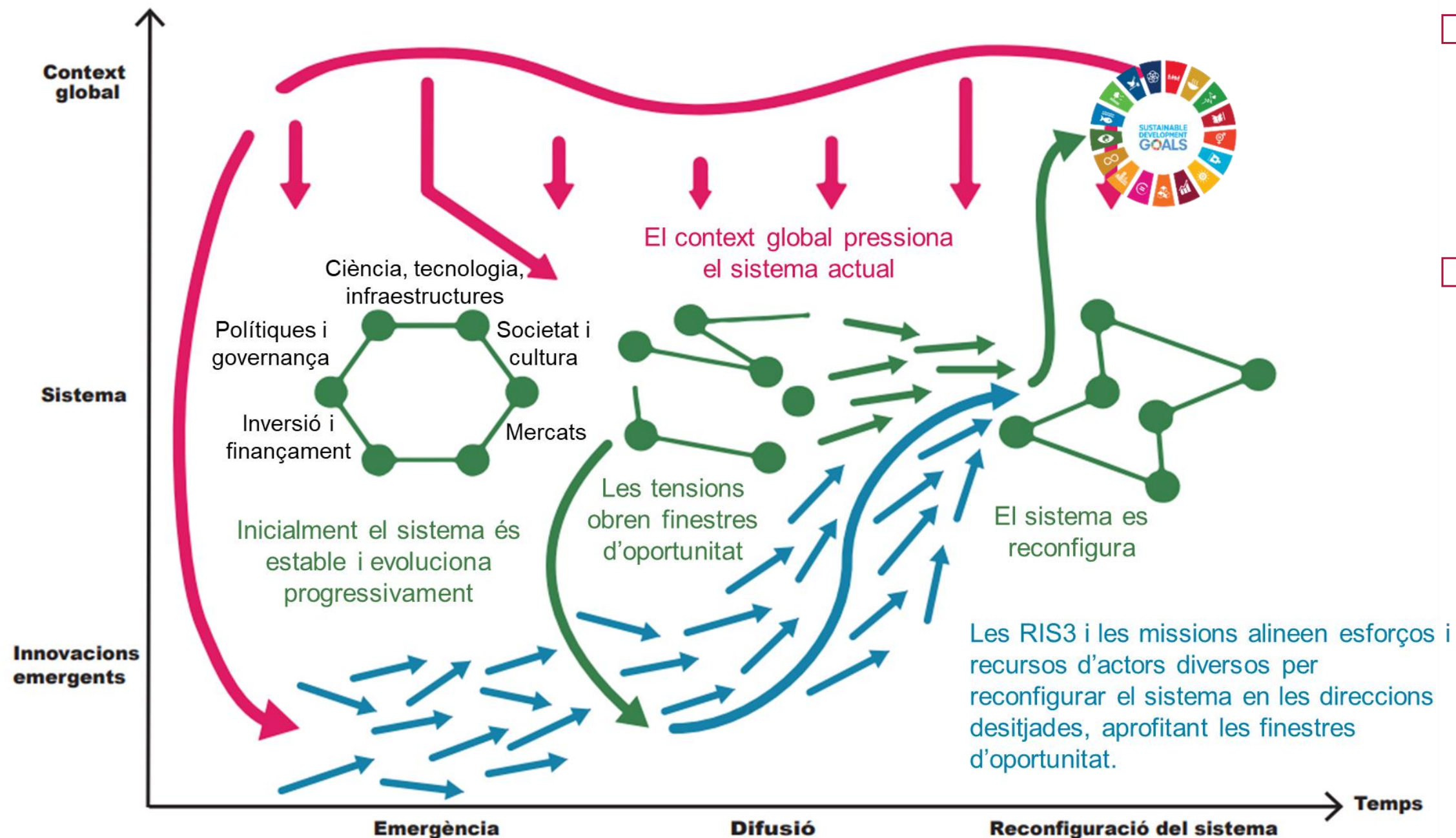


L3nea punteada: Probable direccionalidad
L3nea s3lida: Direccionalidad de las acciones
TRANSFORMATIVE

Adaptado de Schot, Boni, et al (2020)

TRANSFORMACION

RIS3CAT Shared Agendas and The Multilevel Perspective theory of change



- ☐ Les **tendències globals pressionen** els sistemes sociotècnics i els desestabilitzen
- ☐ Les tensions i els problemes generen **oportunitats** perquè es plantegin, es desenvolupin i es difonguin alternatives a les pràctiques dominants, que funcionen amb lògiques diferents (i que responen millor a les pressions de les tendències globals)

Font: Adaptació de Geels i Schot (2007)

Shared Agendas in practice: 3 steps to systems change

First

- Prepare the ground
- Define the challenge, build coalition, diagnose the system
- Set up governance and identify leverage points

Second

- Design and test solutions
- Co-create experiments across policy, markets, practice
- Develop a portfolio, not a single bet

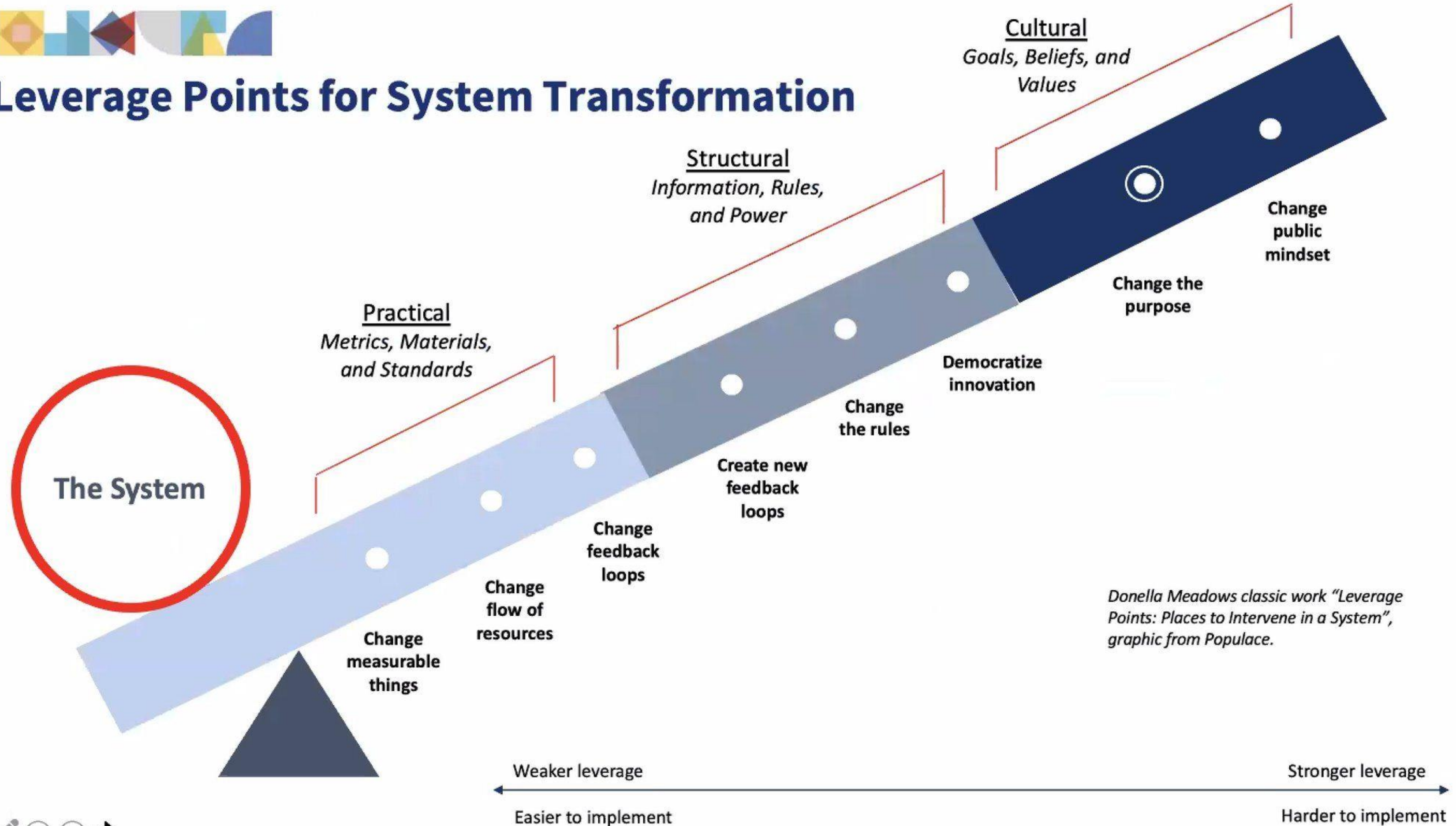
Third

- Achieve systemic impact
- Scale successful solutions
- Monitor how systems shift (not just outputs)
- Learn and adapt through formative evaluation





Leverage Points for System Transformation



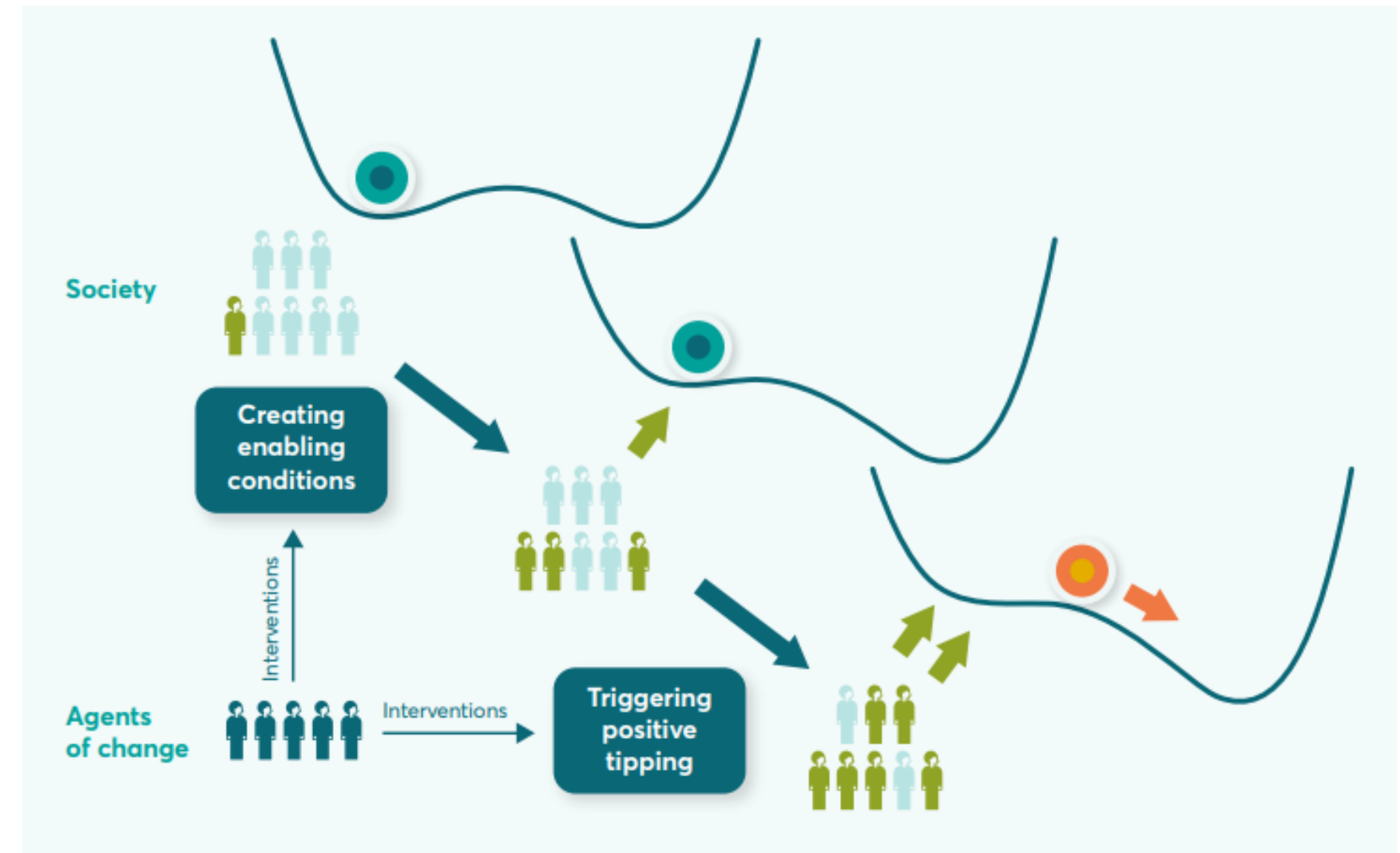
Donella Meadows classic work "Leverage Points: Places to Intervene in a System", graphic from Populace.

Accelerating the
10 Critical Transitions:

Positive Tipping Points for Food and Land Use Systems Transformation

July 2021

Figure 3: A dynamical systems conceptualisation of positive tipping points¹⁵



In this conceptualisation of systemic tipping points, the current state of the system is the "ball" and the shape of the "valley" it sits in describes its resilience to perturbations. The schematic shows how interventions by agents of change can create enabling conditions and then trigger the system to be tipped into an alternative state (the other valley).

<https://www.foodandlandusecoalition.org/wp-content/uploads/2021/07/Positive-Tipping-Points-for-Food-and-Land-Use-Systems-Transformation.pdf>

- While corporate-controlled global commodity chains dominate land and resources, most of the world is actually fed by food chains that are close to home.
- Civil society assessments have estimated that over **70% of the world's population** is fed by small-scale producers and workers in 'peasant food webs', despite them accounting for less than 1/3 of agricultural land and resources.



FOOD AS COMMON GOOD

nature food

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Comment | Published: 11 March 2021

Food as a commodity, human right or common good

[Peter Jackson](#) , [Marta Guadalupe Rivera Ferre](#) , [Jeroen Candel](#), [Anna Davies](#), [Cristiane Derani](#), [Hugo de Vries](#), [Verica Dragović-Uzelac](#), [Alf Håkon Hoel](#), [Lotte Holm](#), [Erik Mathijs](#), [Piergiuseppe Morone](#), [Marianne Penker](#), [Ruta Śpiewak](#), [Katrien Termeer](#) & [John Thøgersen](#)

[Nature Food](#) **2**, 132–134 (2021) | [Cite this article](#)

**Rather than as a consumer good,
as it happened with education
and health at the beginning of
the 20Th century**

[Food as a commodity, human right or common good | Nature Food](#)
[https://www.academia.edu/6604247/What if food is considered a common good](https://www.academia.edu/6604247/What_if_food_is_considered_a_common_good)

“It is not just about inventing new solutions but about transforming our relationship with the planet. We must shift from a paradigm of exploitation to one of stewardship.”

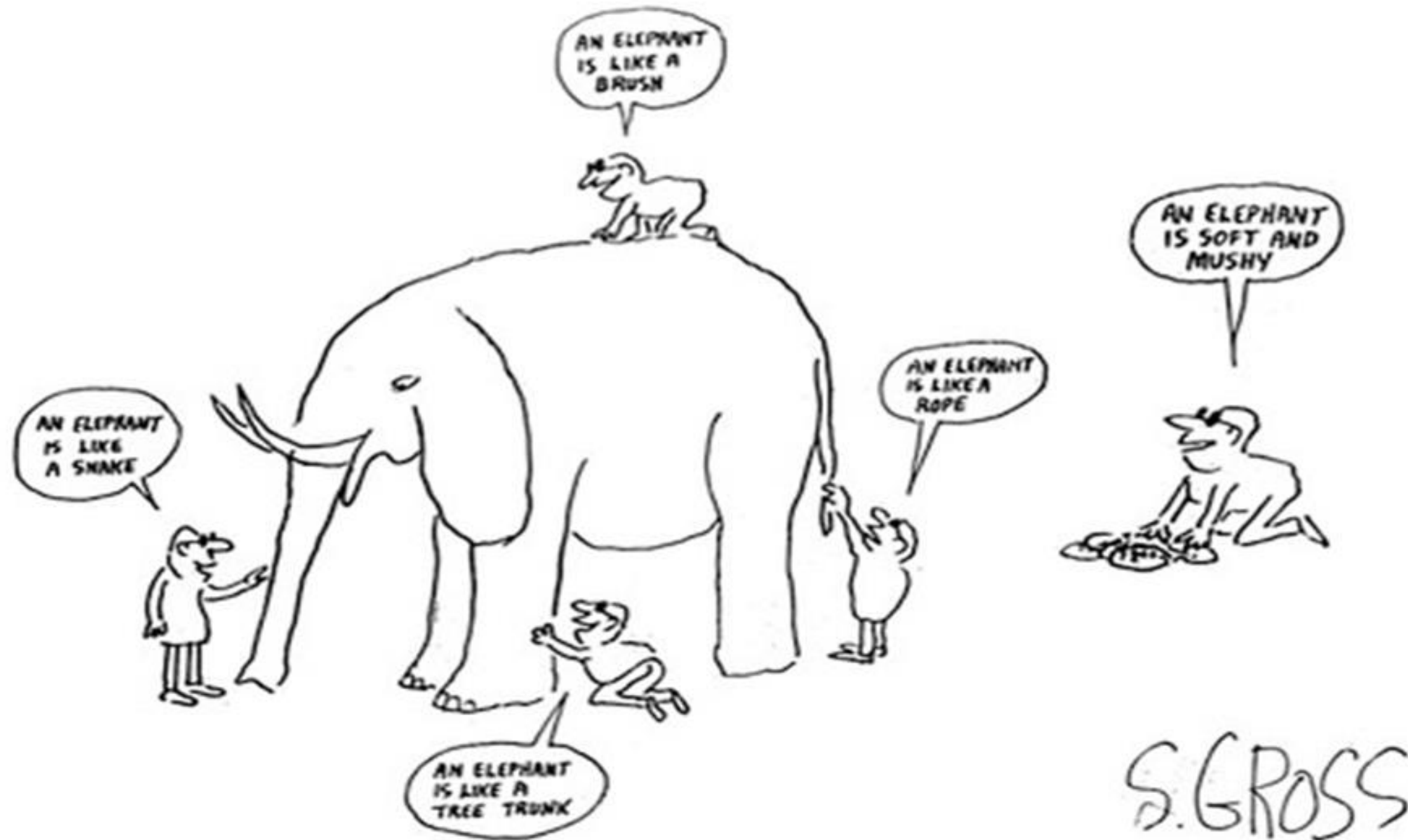
Johan Rockström

Director, Potsdam Institute
for Climate Impact
Research

McKinsey
& Company



We need a combination of perspectives



and a systems approach to solving complex problems

To take away

- There are **no silver bullets to solve complex problems**; we need more information and dialogue to avoid being trapped in polarized and dogmatic positions.
- Science-based analysis shows the way, but **we need more systemic approaches** that integrate a greater number of actors and to avoid reductionism.
- Only the combination of a **multitude of thousands of solutions and small changes** will cause the necessary transformation.
- **Individual responsibility** and behavioral changes are essential, but we need to change the **rules of the system** and, ultimately, the current socio-economic model.
- **Food is the most important single lever** at our disposal to optimize people's health and sustainability within planetary boundaries.

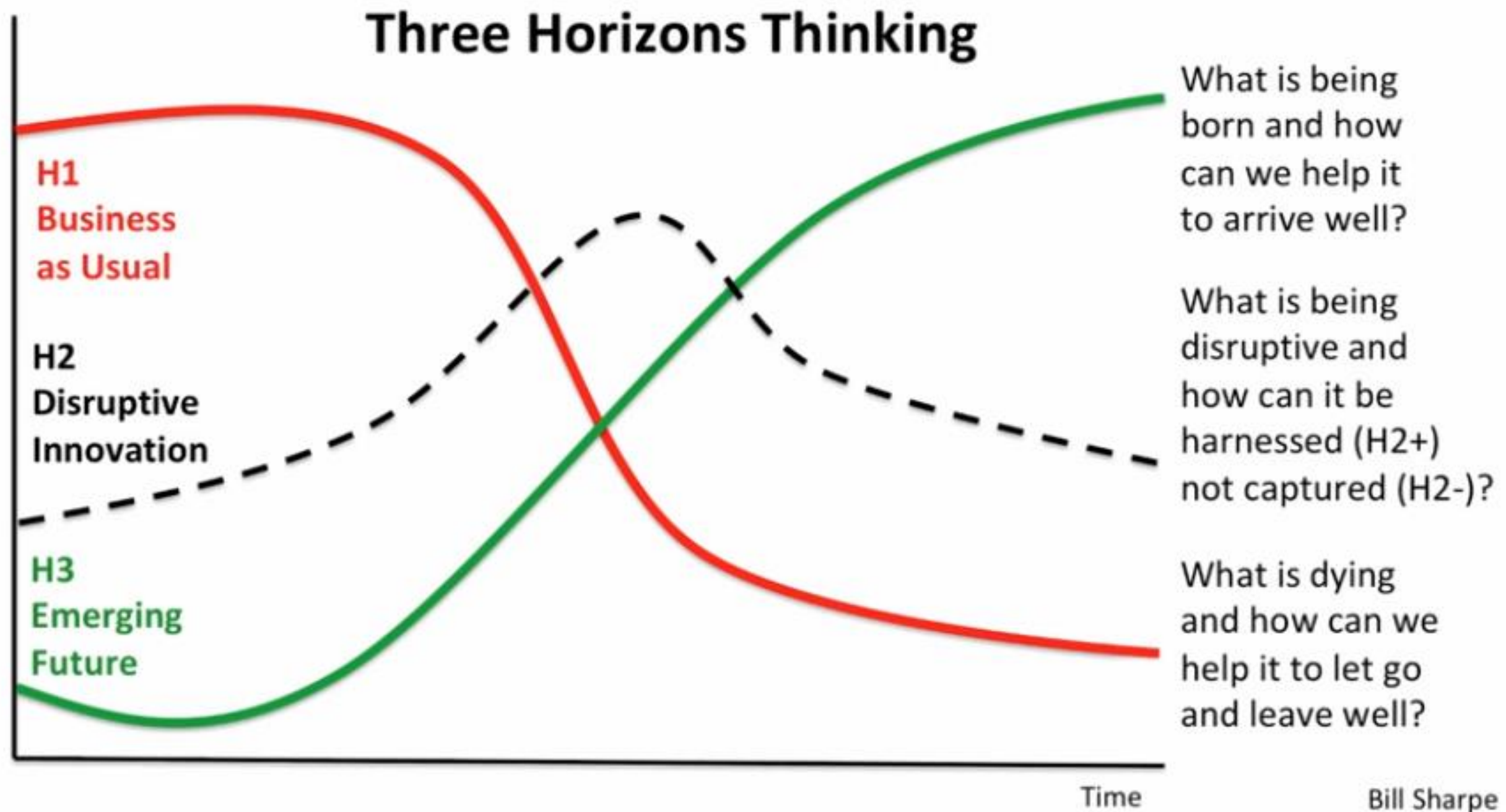
Final thoughts

- Dare to question your own ideas and beliefs.
- Feed your curiosity, try to understand life processes.
- Be wary about “the solution”.
- Remember that innovation is worldview dependent



TASK ONE

Three Horizons: An introduction



Questions to answer

A — What is business as usual?

B — Look back — how did we get here?

C — Why do we believe it's not fit for purpose and is failing?

D — Is there anything valuable about the old system we would want to retain rather than lose?

E — What is the future we want to bring about?

F — What are seeds of that future visible in the present?

G — Looking back — whose work are these present possibilities built on?

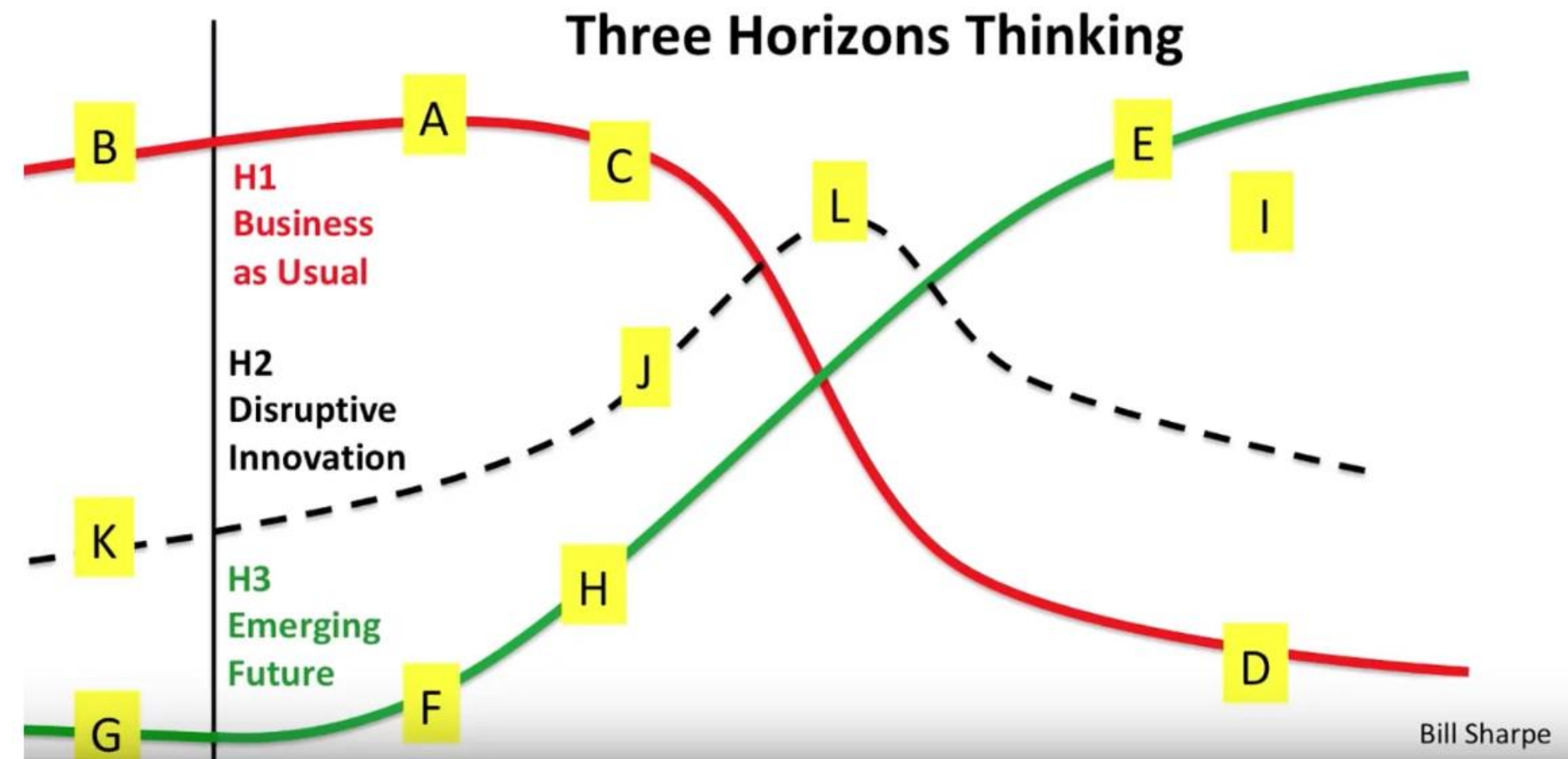
H — How could these “seeds of that future” be scaled and spread?

I — What are competing visions of the future being pursued by others?

J — What is being disrupted?

K — What are the roots of those disruptions?

L — If you are a disruptive actor, whether a social movement, a tech innovator, or a new form of finance, what kind of guidance can you set for yourself to help influence whether your disruption is captured to extend the life of H1, or harnessed to bring about H3?

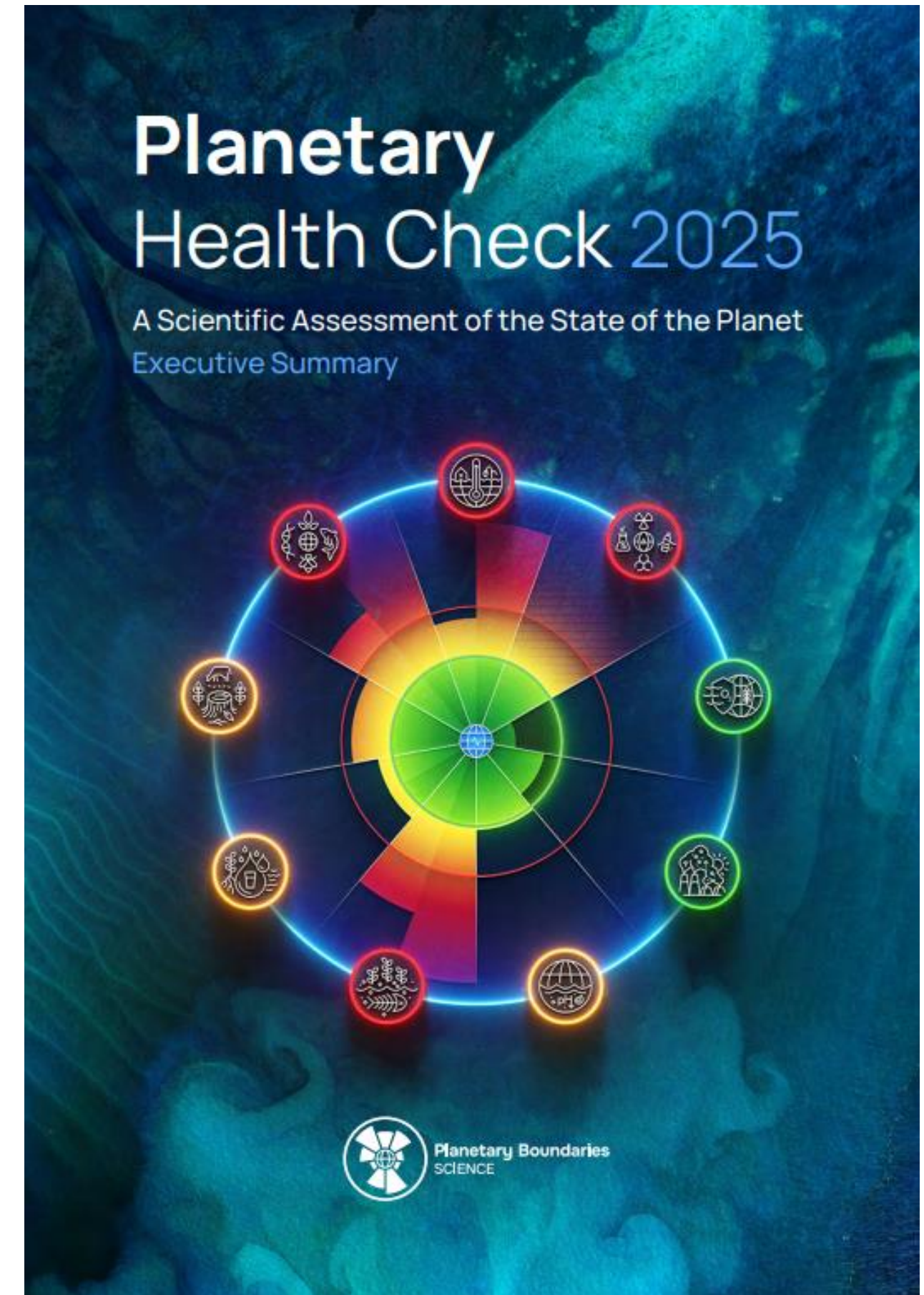


[Exercise instructions - doc](#)

<https://www.youtube.com/watch?v=5KfRQJqpPU>

RECOMMENDED TASK

- Read the executive summary of the Planetary Health Check 2025 report.
- Question your own level of knowledge about the topic.
- Reflect on the importance of the information presented.
- Decide whether it changes your perception of the challenges or issues you work on.
- Assess how to apply this knowledge framework to your professional practice.
- Assess how to apply it to your personal Life.



Thank you!



Generalitat de Catalunya
**Departament d'Empresa
i Treball**



**Cofinançat per
la Unió Europea**

Subvencionat pel Departament d'Empresa (**Programa
Primer**) i amb el cofinançament del Fons
Social Europeu Plus