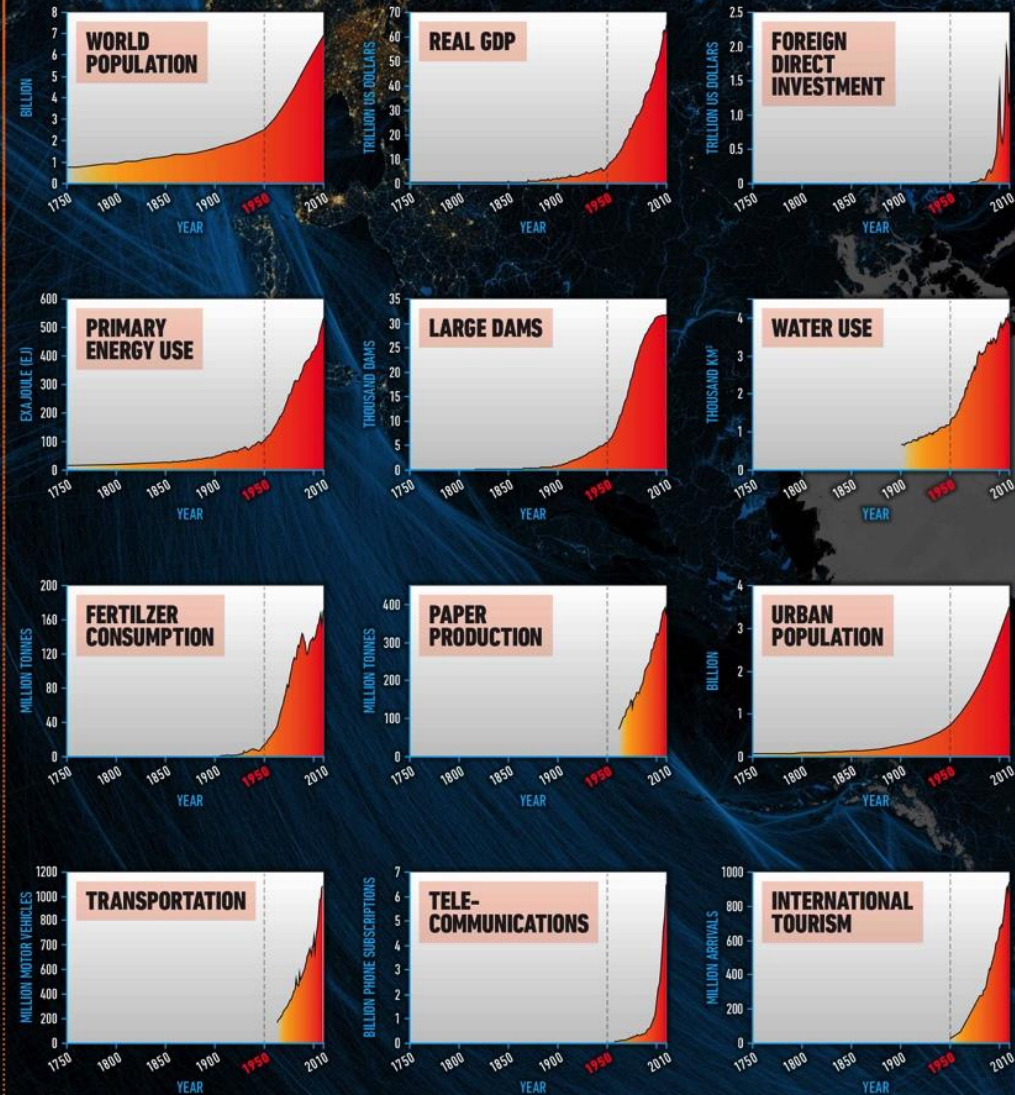


# Flourishing within “planetary boundaries”

Victor Galaz  
Deputy Science Director  
Associate Professor  
Stockholm Resilience Centre

# “the Great Acceleration”

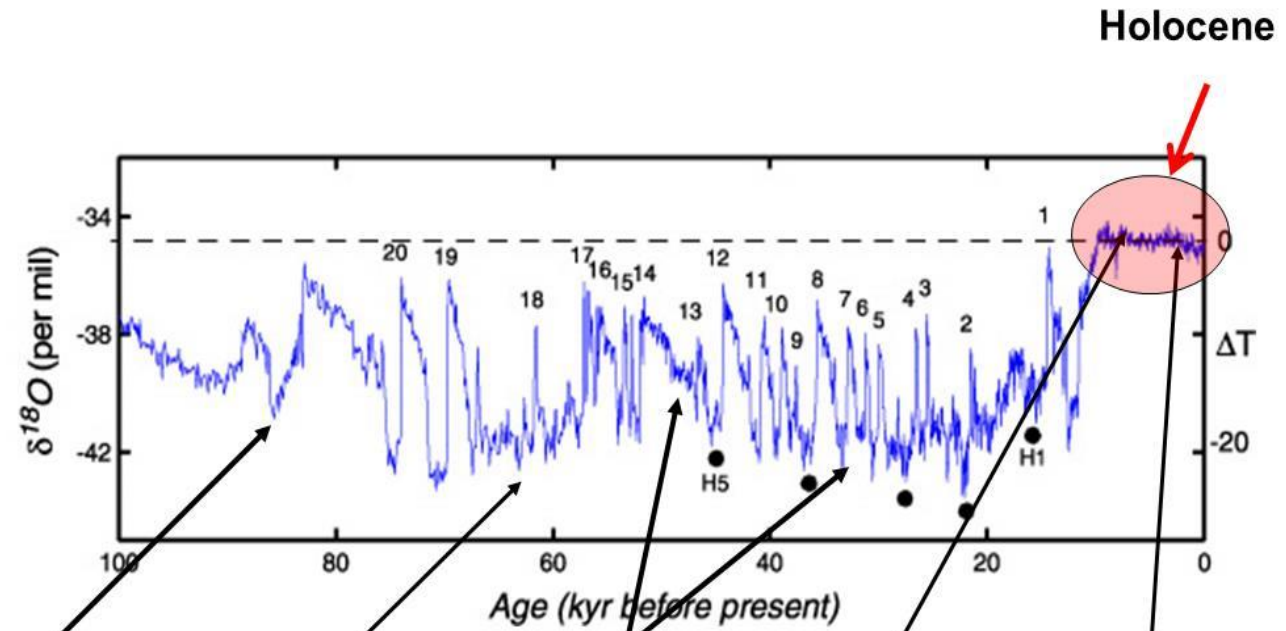
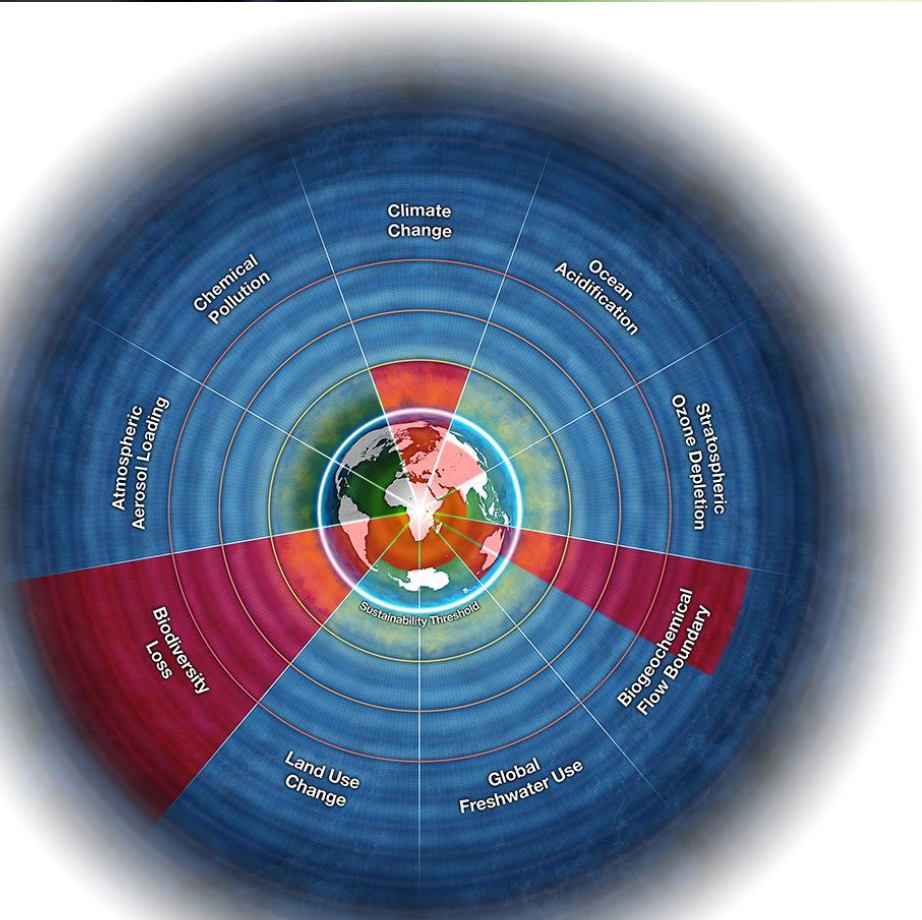
## SOCIO-ECONOMIC TRENDS



## EARTH SYSTEM TRENDS



# Earth system resilience



First migration of fully modern humans out of Africa

Aborigines arrive in Australia

Migrations from South Asia to Europe

Beginning of agriculture

Great Asian, European, African, American civilisations

Source: GRIP ice core data (Greenland) and S. Oppenheimer, "Out of Eden", 2004

# Consequences of twenty-first-century policy for multi

**“This long-term perspective illustrates that policy decisions made in the next few years to decades will have profound impacts on global climate, ecosystems and human societies – not just for this century, but for the next millennia and beyond.”**

Peter U. Clark  
Scott Kulp  
Daniel P. Schrag  
Ricarda Winkelmann  
Raymond T. Pierrehumbert

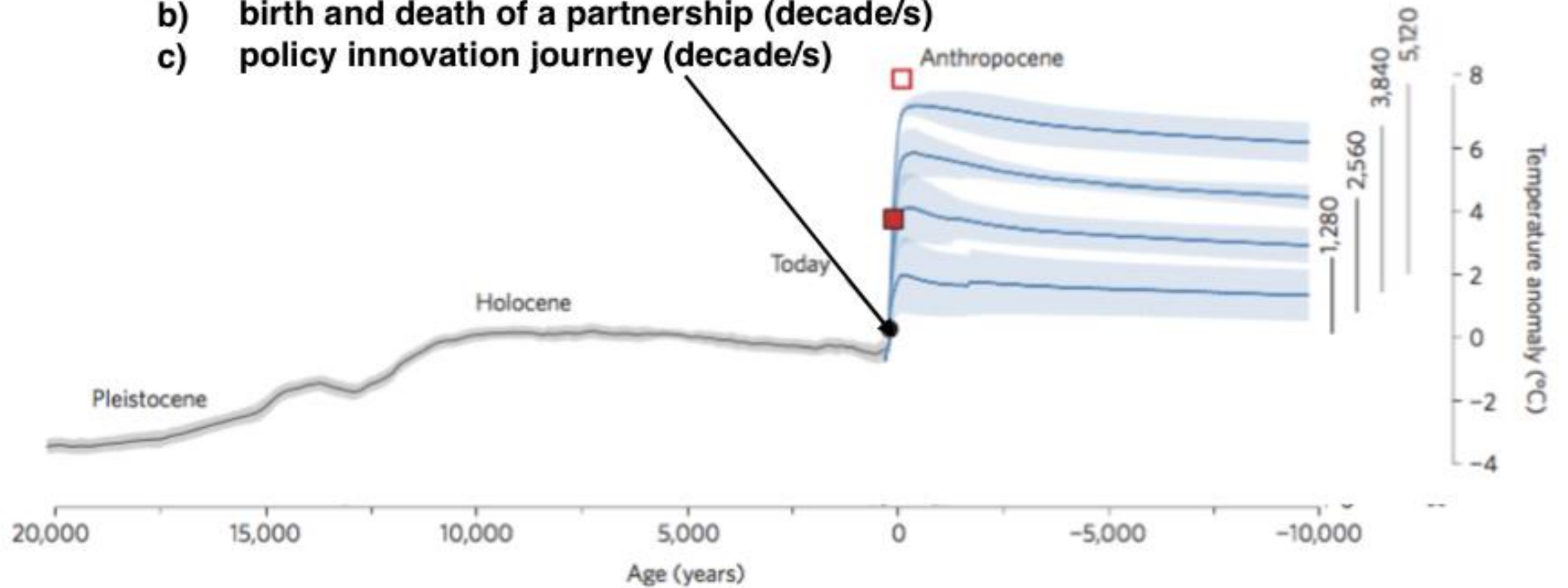
Most of the perspective is framed by observations and focus on this century; we argue that

carbon emissions are likely to occur, need to be placed into a long-term context that includes the past 20 millennia, when the last Ice Age ended and human civilization developed, and the next ten millennia, over which time the projected impacts of anthropogenic climate change will grow and persist. This long-term perspective illustrates that policy decisions made in the next few years to decades will have profound impacts on global climate, ecosystems and human societies — not just for this century, but for the next ten millennia and beyond.

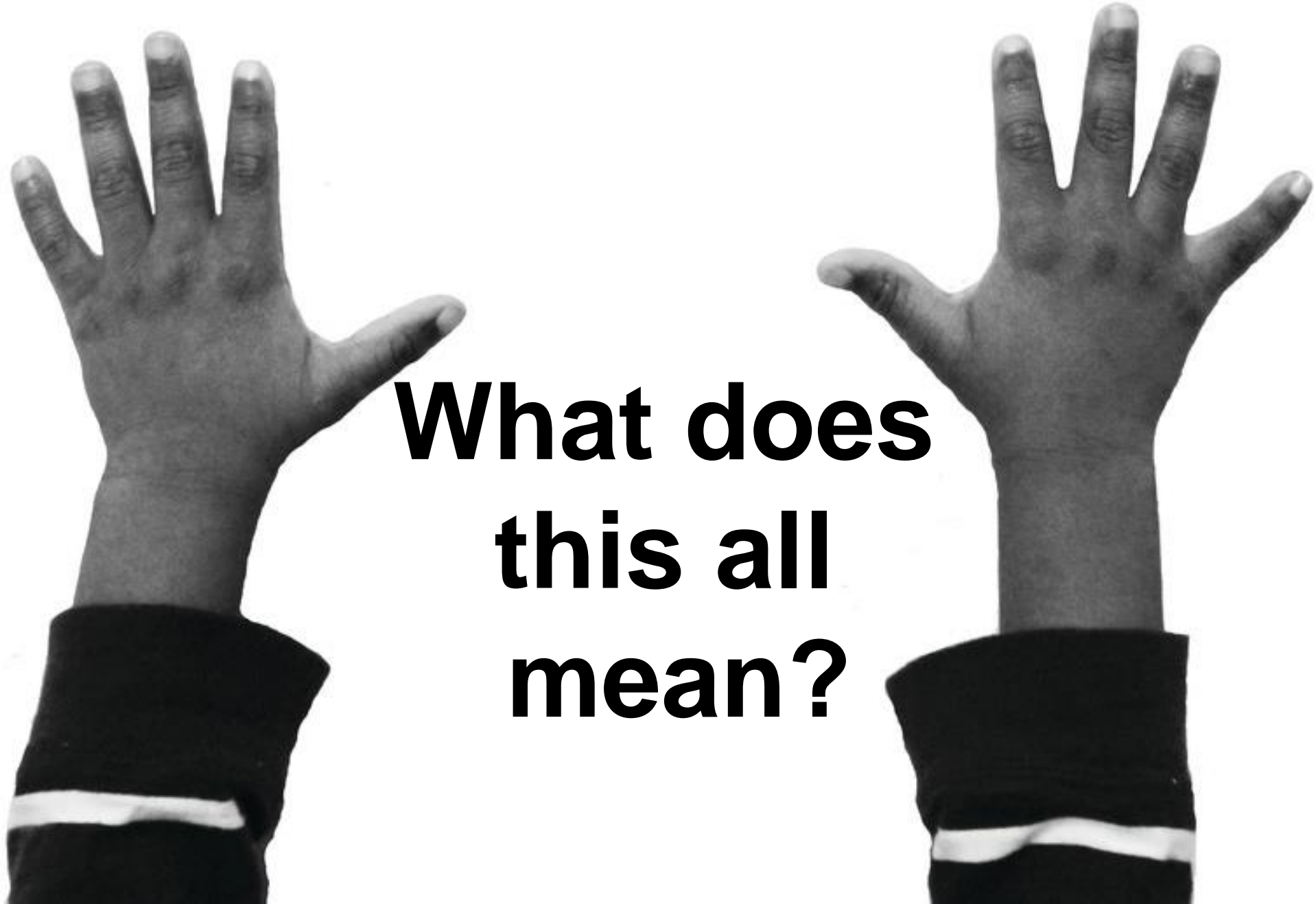
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**temporal scale of**

- a) investment cycle (months/years/decades)
- b) birth and death of a partnership (decade/s)
- c) policy innovation journey (decade/s)



Remade from Clark et al. (2016), *Nature Climate Change*

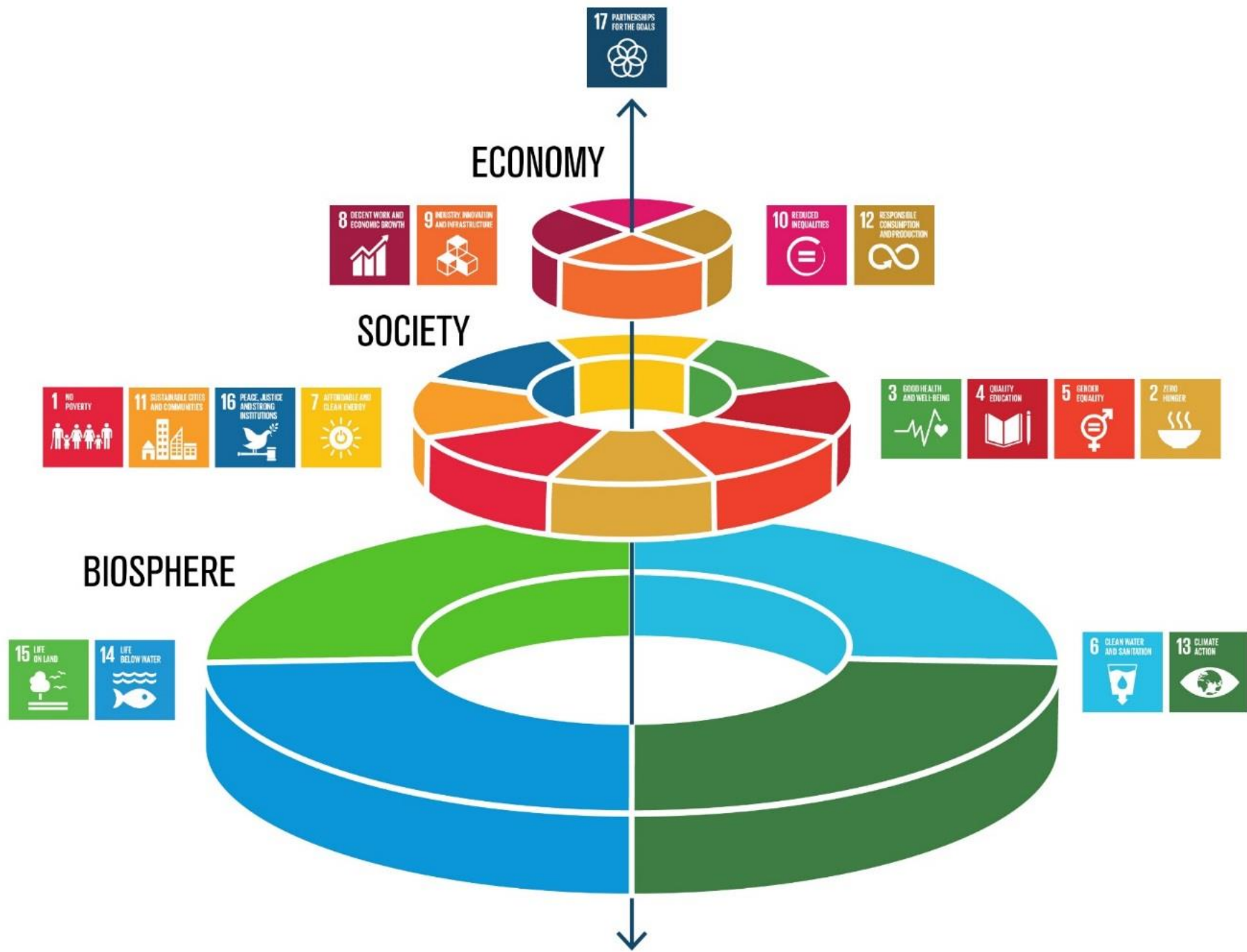


**What does  
this all  
mean?**

# THE GLOBAL GOALS

For Sustainable Development



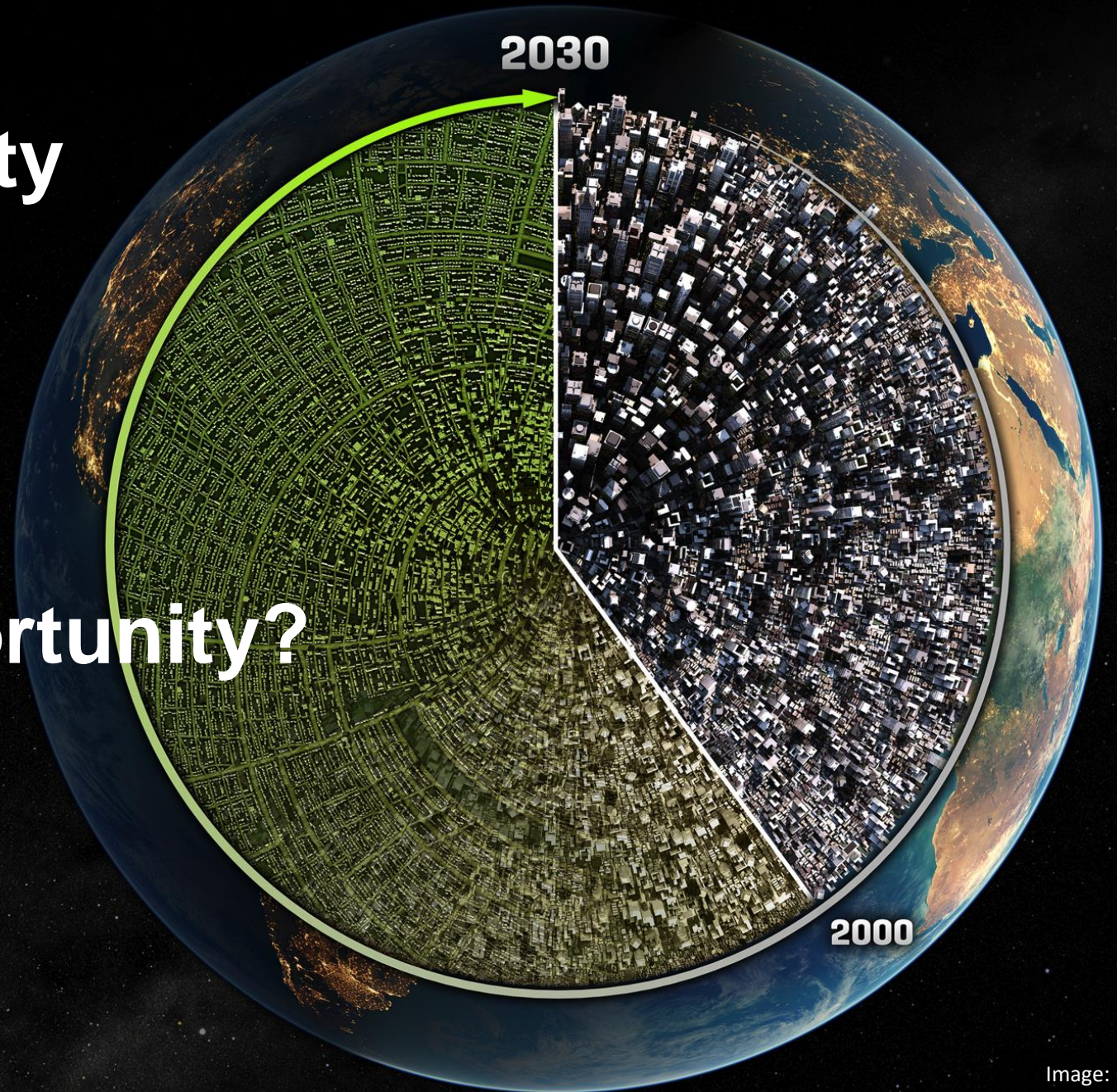




# An Urban Opportunity

More than 60% of the area projected to be urban in 2030 has yet to be built

# An Investment Opportunity?





**”Carbon neutral”  
Climate ”smart”**

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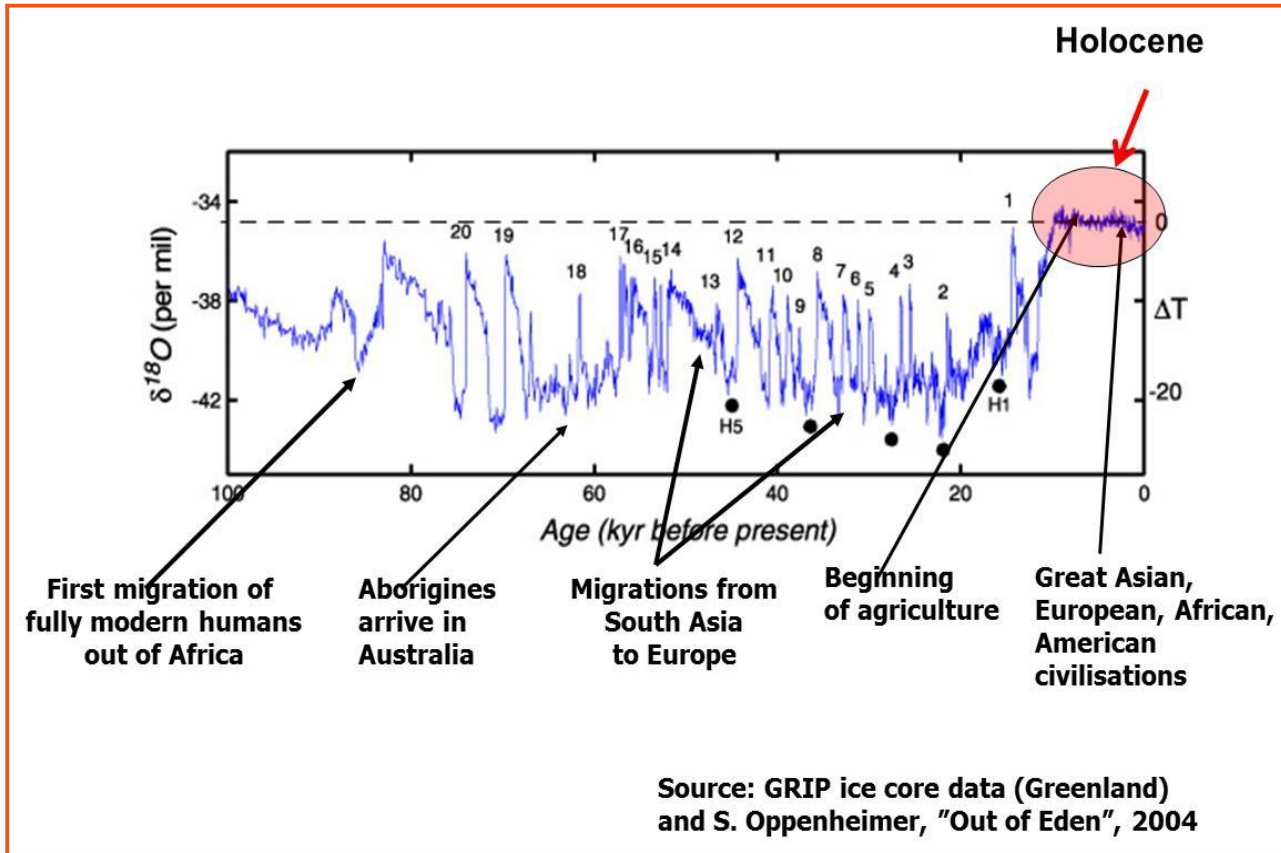
# Biosphere positive+ investments

- build on insights from ecology and the Earth system
  - expands ecological services
  - increases the "safe operating space"
-



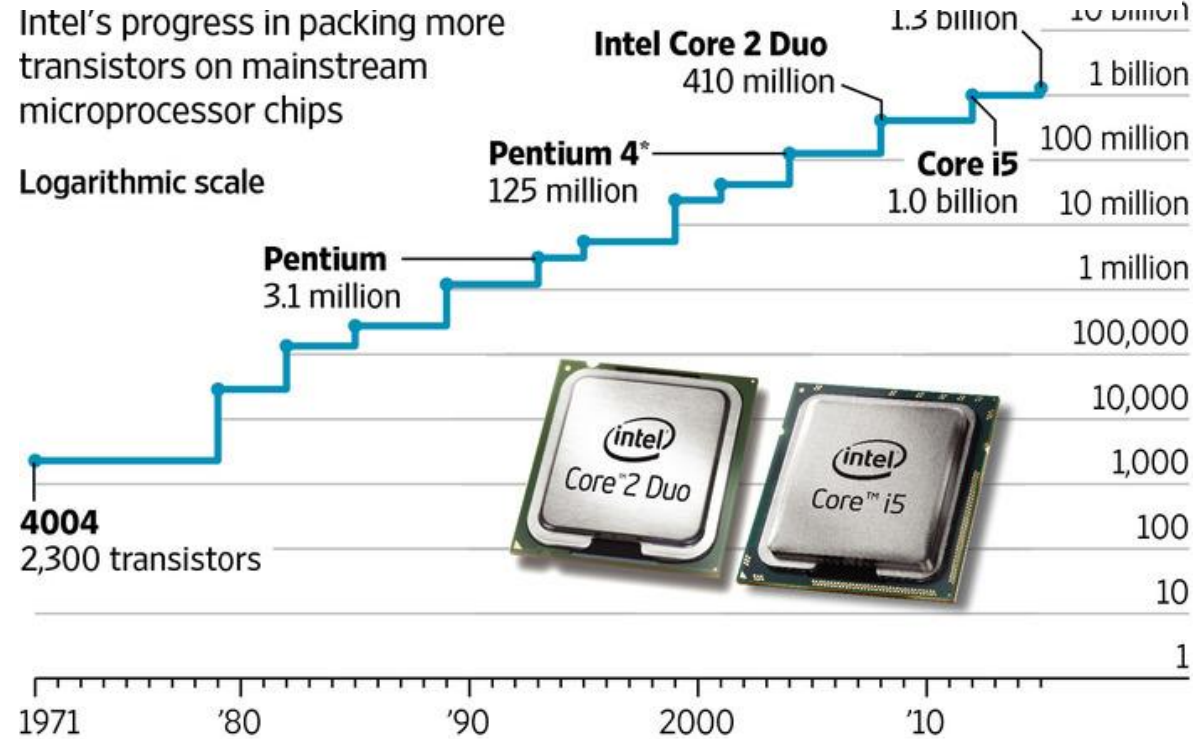
**Target "tipping elements"**  
**a) Reduce stressors**  
**b) Enhance their capacity to recovery and renewal (resilience)**

# "Moore's law" for biosphere positive investments



Intel's progress in packing more transistors on mainstream microprocessor chips

Logarithmic scale



\*Upgraded versions of prior models  
Source: Intel

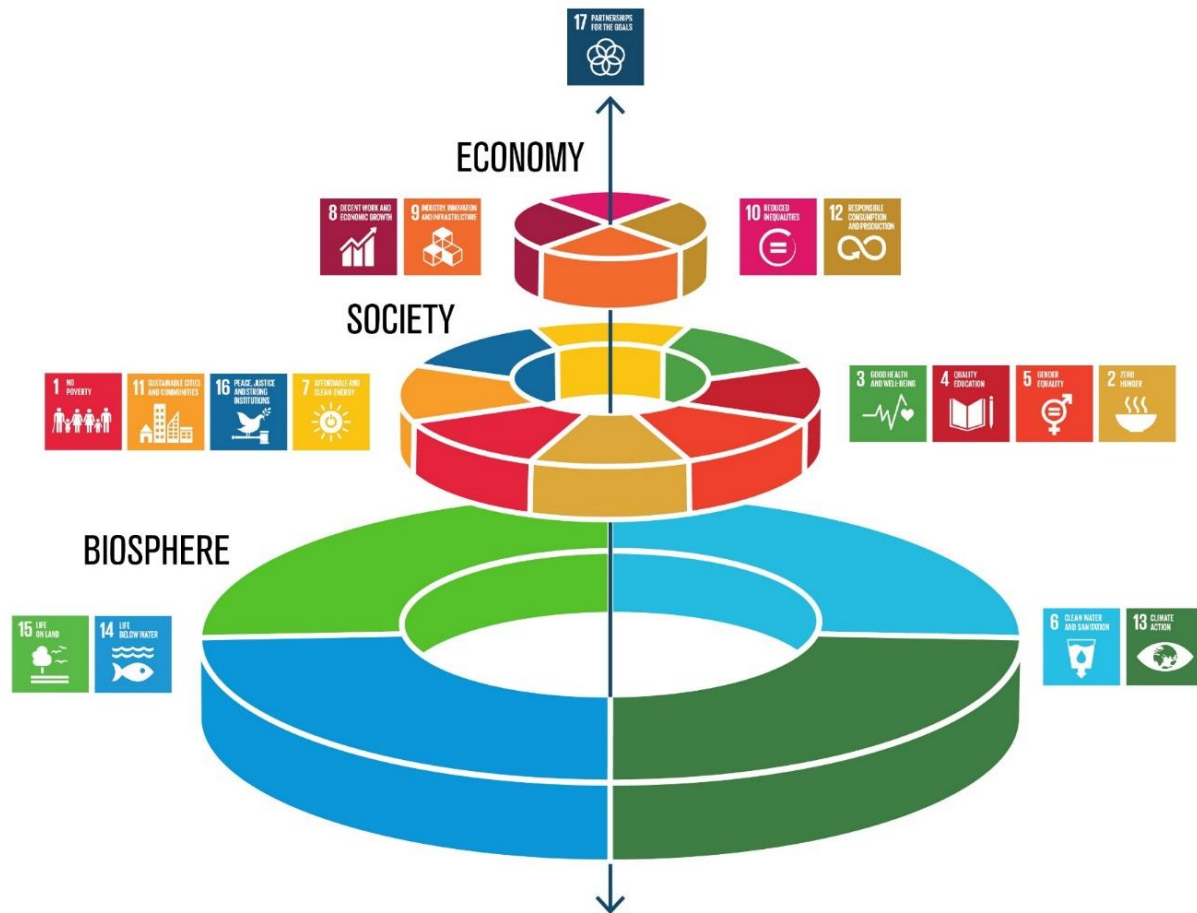
THE WALL STREET JOURNAL.

Sustainability-themed investing globally: 0.23% of total assets under management in 2014

# Planetary opportunities

Shift in mindset for investors!

From minimizing environmental impacts, to building Earth system resilience



# Thank you!

Mistra Financial Systems (At Misum)  
Global Economic Dynamics and the Biosphere  
Program (Royal Swedish Academy of Sciences)  
Vinnova ('Earth system finance')

Victor Galaz

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