

**futureearth**  
research for global sustainability

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UNITED NATIONS  
UNIVERSITY





**50,000+**

Our networks reach 50,000 global sustainability researchers and people interested in this research



**>20**

National networks established, and many more in progress



**11**

Knowledge-Action Networks



**>20**

Major international research projects

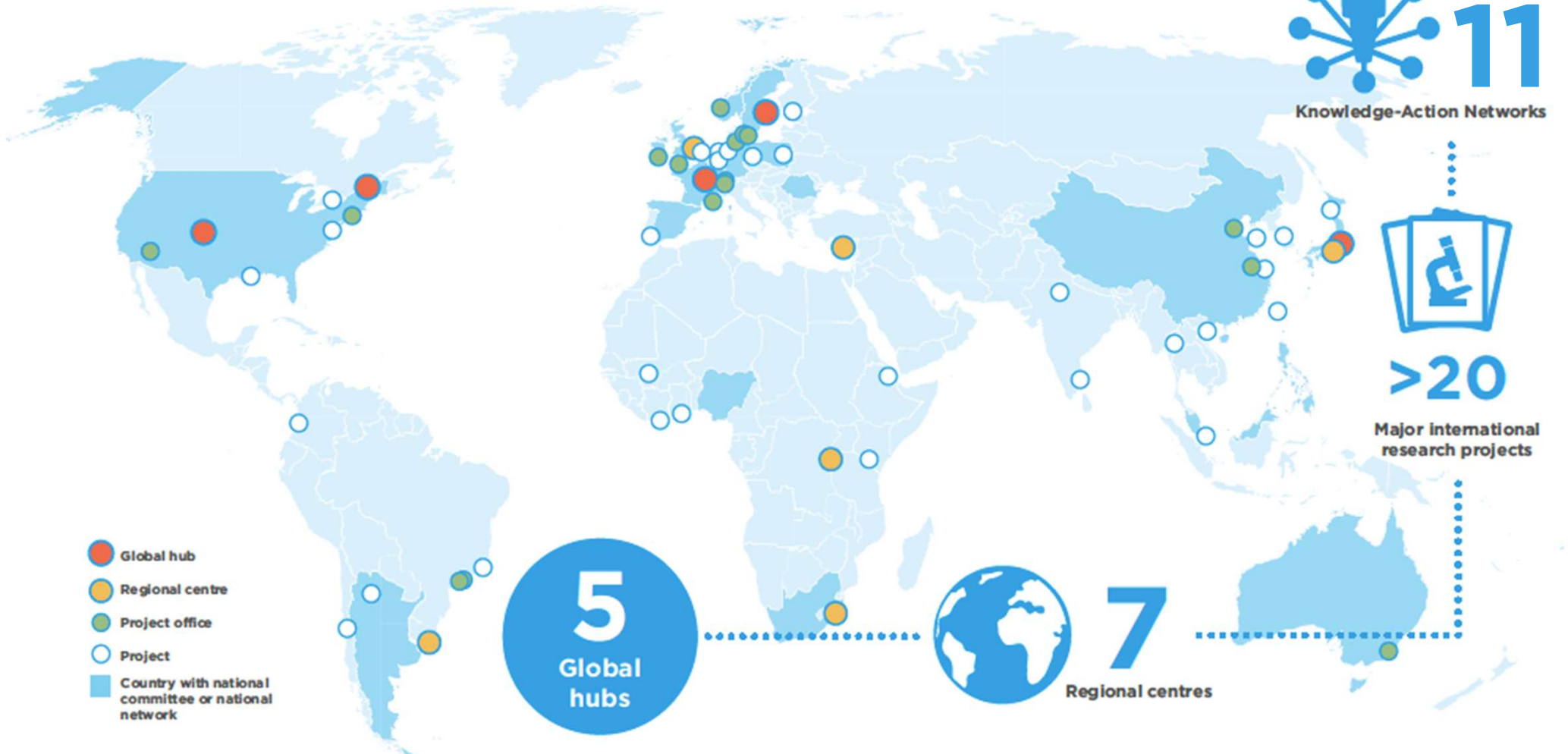
**5**  
Global hubs

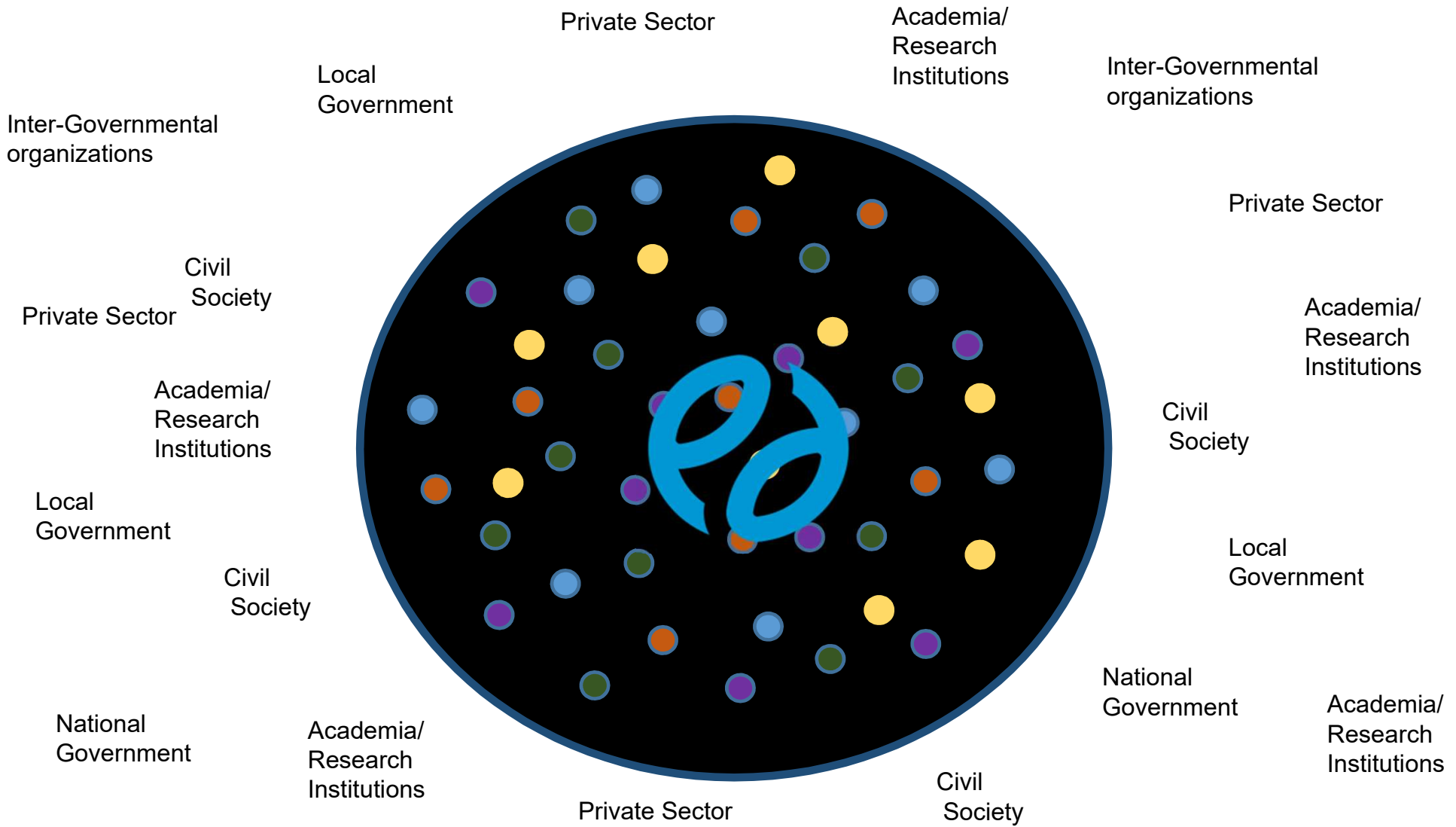


**7**

Regional centres

- Global hub
- Regional centre
- Project office
- Project
- Country with national committee or national network



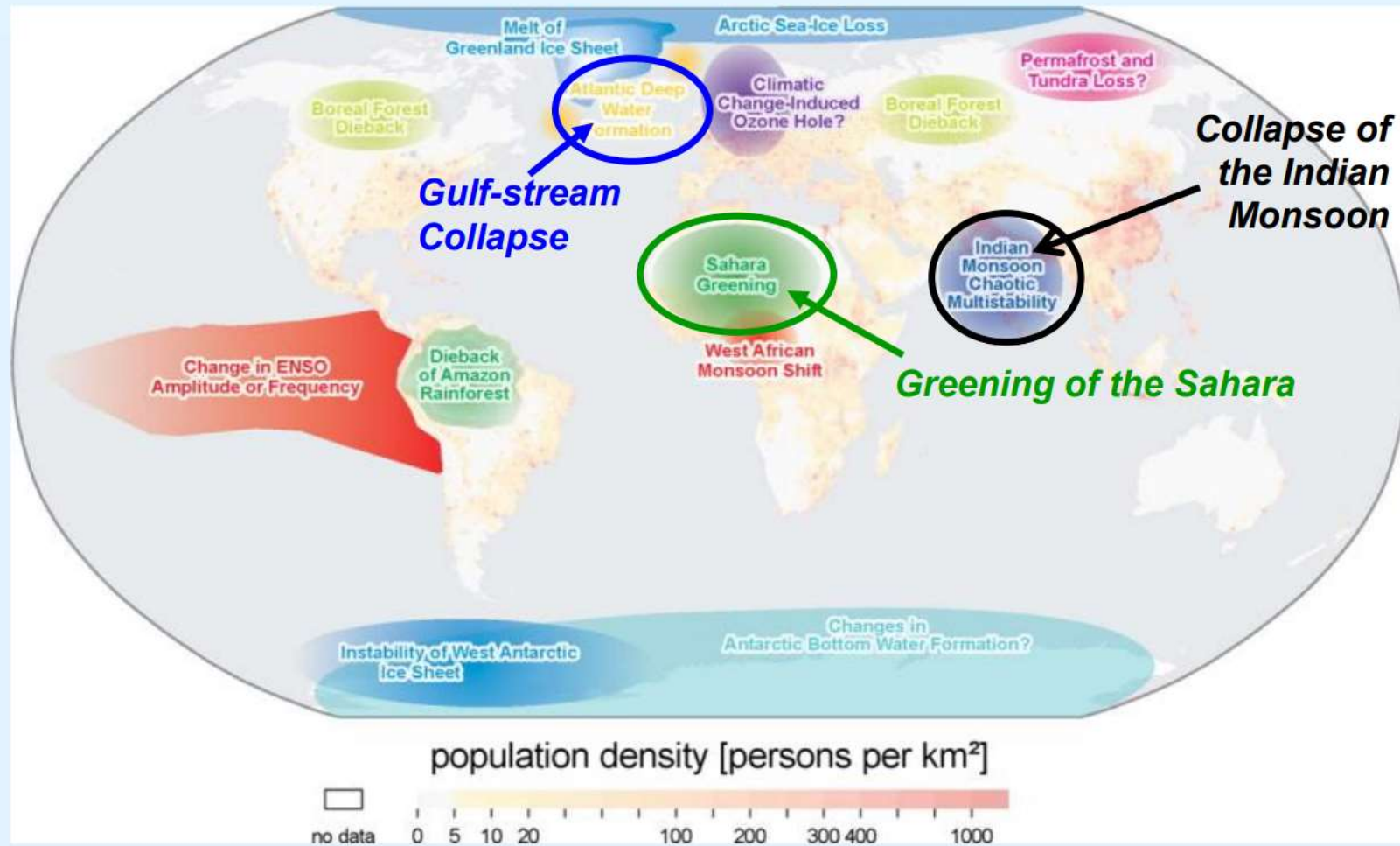




# Knowledge-Action Networks



# Tipping Points (Lenton et al., 2008)



# Disruptive Change

## Easter Parade on Fifth Avenue, New York, 13 years apart

1900: where's the car?



1913: where's the horse?



Images: L. National Archive, [www.archives.gov/research/american-cities/images/american-cities-101.jpg](http://www.archives.gov/research/american-cities/images/american-cities-101.jpg)

R. [thorpy.com/node/204](http://thorpy.com/node/204)

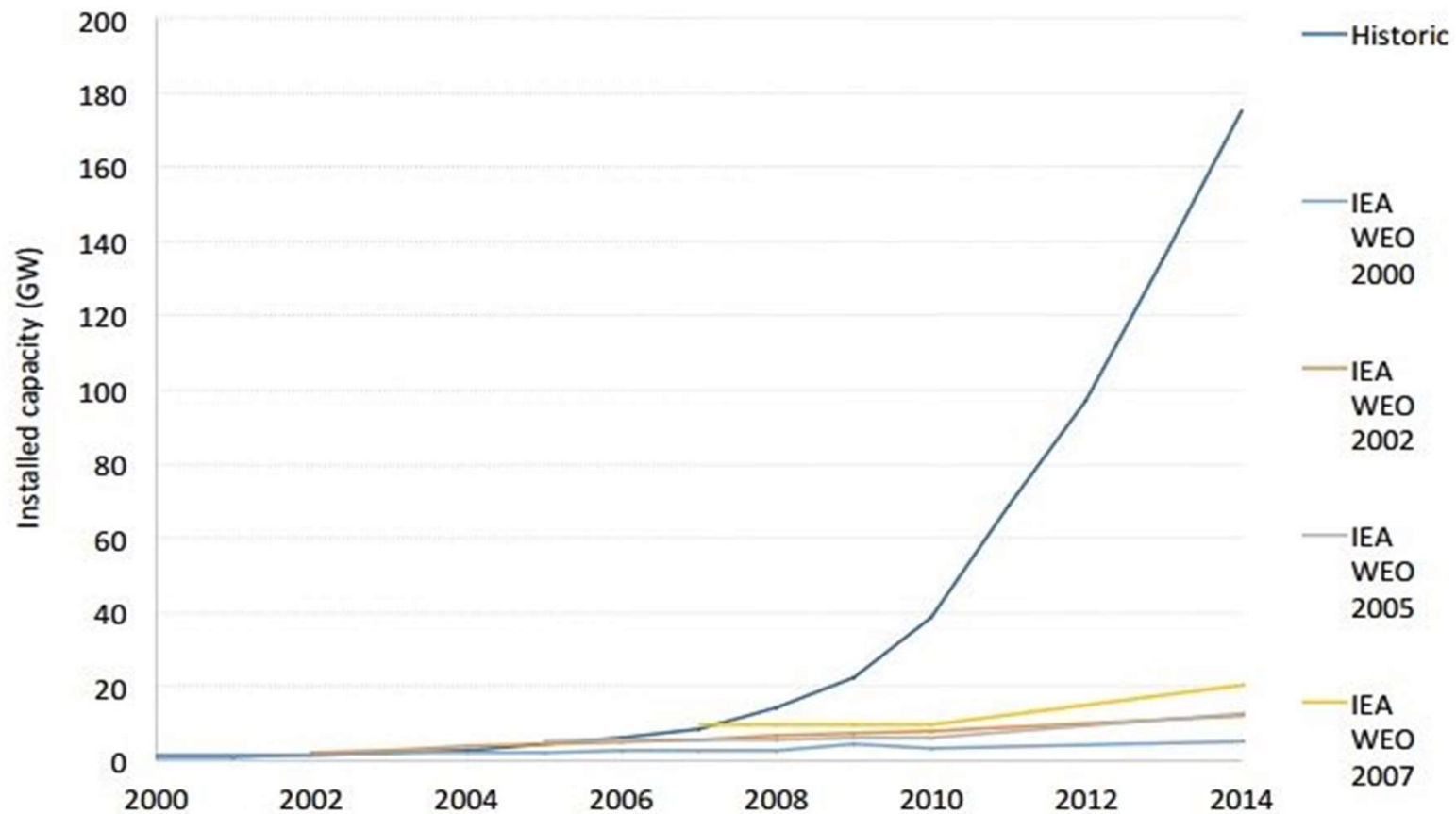
Inspiration: Tona Seba's keynote lecture at AltCar, Santa Monica, CA, 28 Oct 2014.

<http://congress.com/keynote-at-altcar-santa-monica-100-electric-transportation-100-solar-by-2020/>

Source: Campanale, Carbontracker

# Energy forecasts and exponential change

Figure A: IEA solar PV capacity forecasts against actual







Science (24 March 2017) Rockström et al

# A “CARBON LAW”

Meeting the Paris Agreement translates to

HALVING EMISSIONS EVERY DECADE to 2050



Leonardo DiCaprio

@LeoDiCaprio

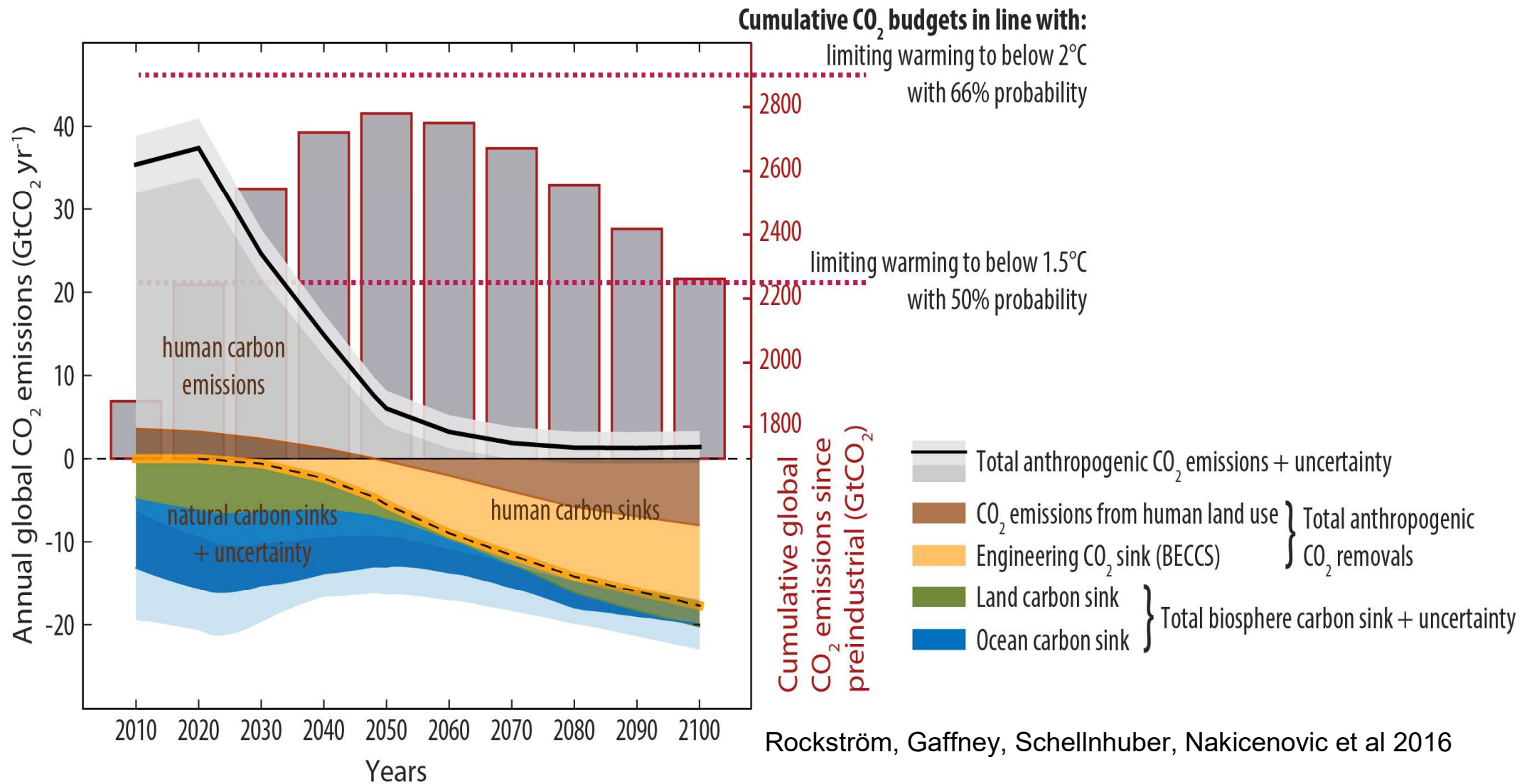
Follow

Leading scientists propose a new approach to tackle #climatechange called the #CarbonLaw. Learn more:





# A global transformation – to a safe climate future

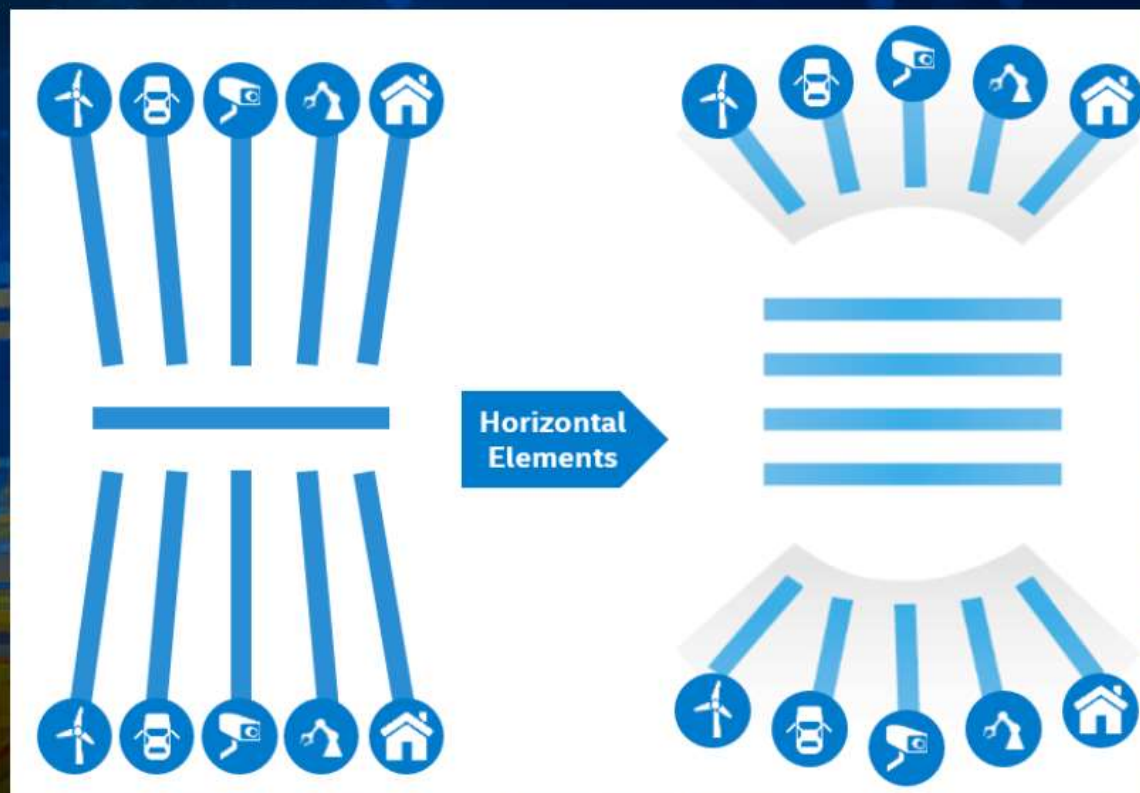


# FROM VERTICAL TO HORIZONTAL ECOSYSTEM

## ENABLES COST REDUCTION AND CONTINUOUS INNOVATION

### VERTICAL

- APPLICATIONS
- SENSORS
- SERVICES



### HORIZONTAL

- INFRASTRUCTURE
- COMMUNICATION
- SECURITY



# Transformations

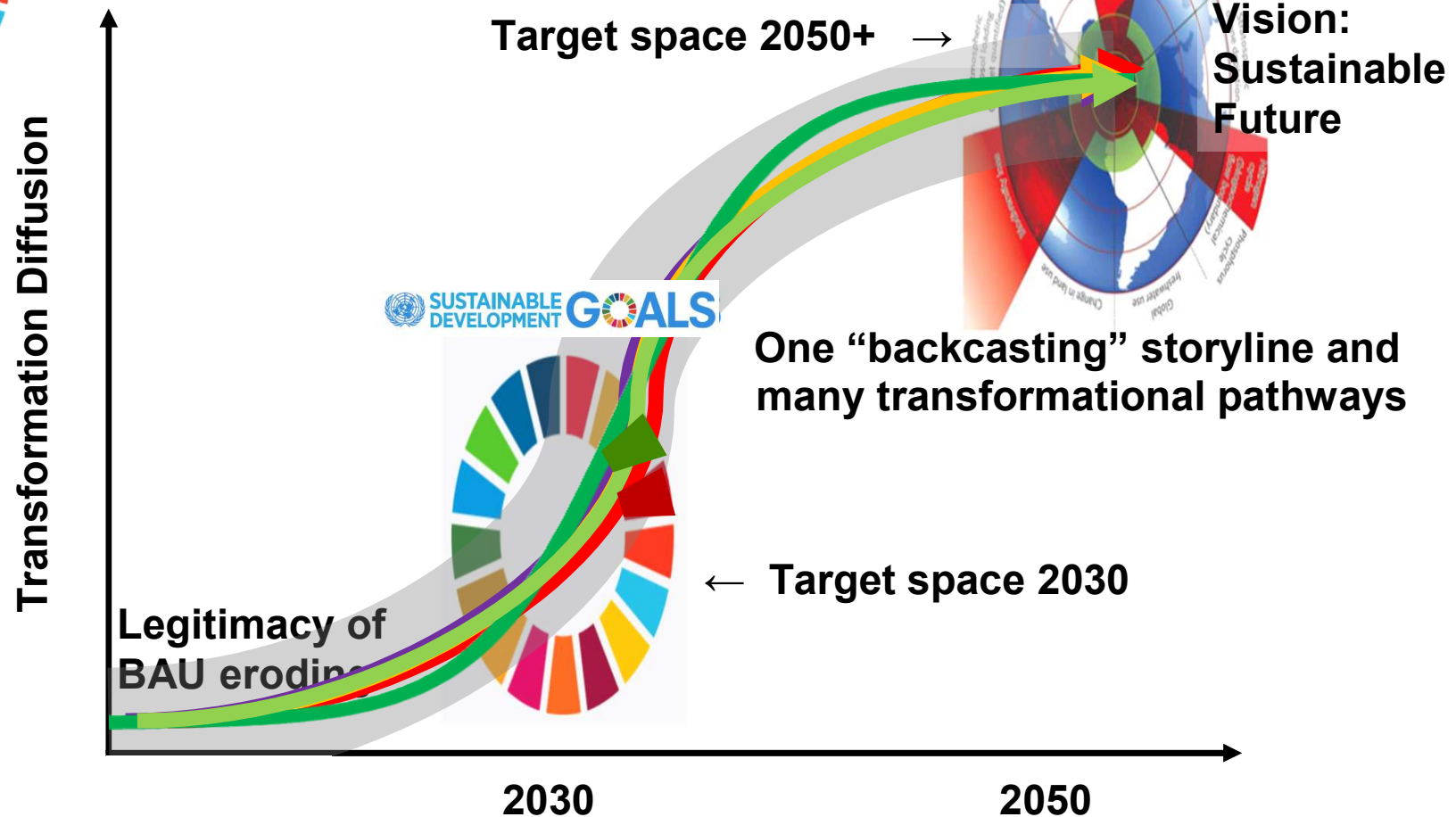
- Challenge: To understand and inform how societies can make transitions toward sustainability
- Working in tandem with the ISSC Transformations project
- Partnering on the major Transformations 2017 conference (Dundee, UK, 2017)
- Setting up a Global SDG Transformations Forum





# The World in 2050 (TWI2050.com)

**“Doing More with Less” within Planetary Boundaries**



Source: After WBGU, 2011



# How drive low-carbon disruptions?

- Business models as much as tech
  - A dedicated push, consistent policy
  - Meeting user needs
  - Fair access to markets
  - Addressing social resistance
- 
- Are distributed patterns impacting?
  - Differences between countries?
  - How deal with incumbents?
  - Are current modeling tools sufficient?



  
UK Science  
& Innovation  
Network

**SILCI**  
Social Influence and disruptive Low Carbon Innovations

**futureearth**  
research for global sustainability

**Tyndall°Centre**  
for Climate Change Research



# Tipping Cities to Decarbonisation Pathways through ICT

## Tokyo 2018 | Stockholm 2018





# Key 2018 conference on cities and climate change



Deadline for abstracts and session proposals: 16th Oct

# Take aways:

- Magic will happen in the **intersection** between different academic disciplines, stakeholders, policymakers...
- Research should include understanding for possible sudden system-level changes, **tipping points**
- How **stimulate and direct** exponential change towards sustainability?

Thanks for listening!

To collaborate, start here → [erik.pihl](mailto:erik.pihl@futureearth.org)  [futureearth.org](https://futureearth.org)