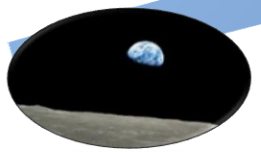
EEA and Eionet: a changing strategic (knowledge) context for 2020 and beyond

Eionet Day

Dr Hans Bruyninckx, 26 June 2019, Budapest

25 1994-2019 European Environment Agency

Five decades of focus on the environment



1968
Apollo Earthrise

1972
Stockholm Conference
1st EAP

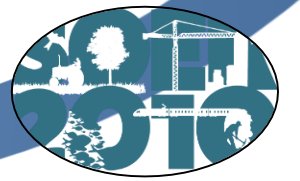
1990
EEA / Eionet Regulation

1992
5th EAP
Rio Conference
UNFCCC

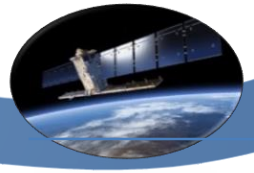
1994
EEA / Eionet establishment

1995
The Dobris assessment

2005
SOER



2010
SOER



2012
Copernicus satellite launch

2013
MAWP

2014
7th EAP

2015
SOER

2015
SDGs

2015
Paris COP 21

2015
Circular economy

2015
EU Energy Union

2016
European Commission
Communication on SDGs

2020
CoP/Convention on Biological Diversity

2030... 2050

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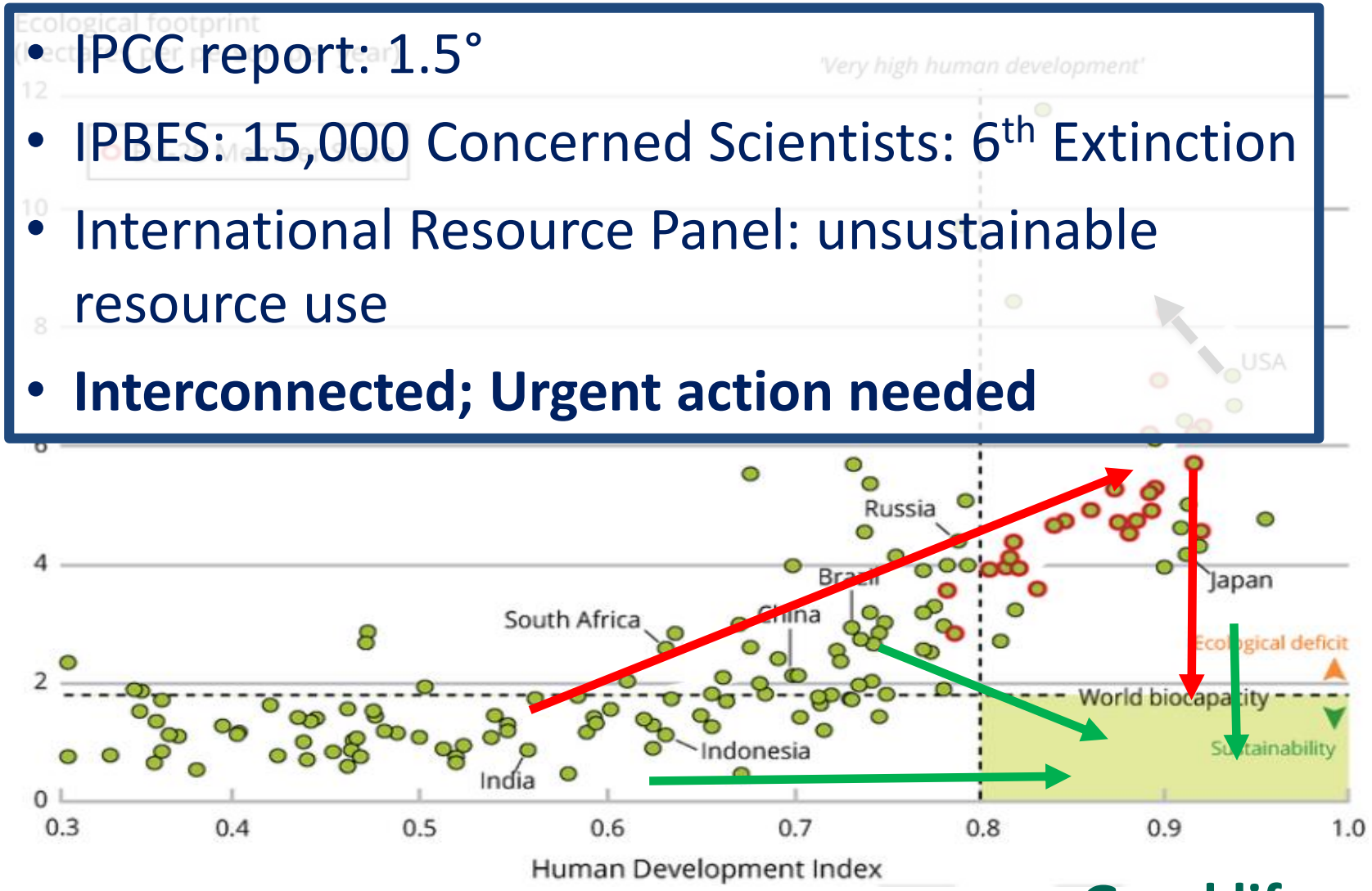
Challenge of 21st century: 10 billion people, 1 planet

- IPCC report: 1.5°
- IPBES: 15,000 Concerned Scientists: 6th Extinction
- International Resource Panel: unsustainable resource use
- **Interconnected; Urgent action needed**



Water, forests, oceans, biodiversity climate, resources

Within limits of the planet

Education, health, food, housing, safety

Good life

(Global Footprint Network, 2012; UNDP, 2014)

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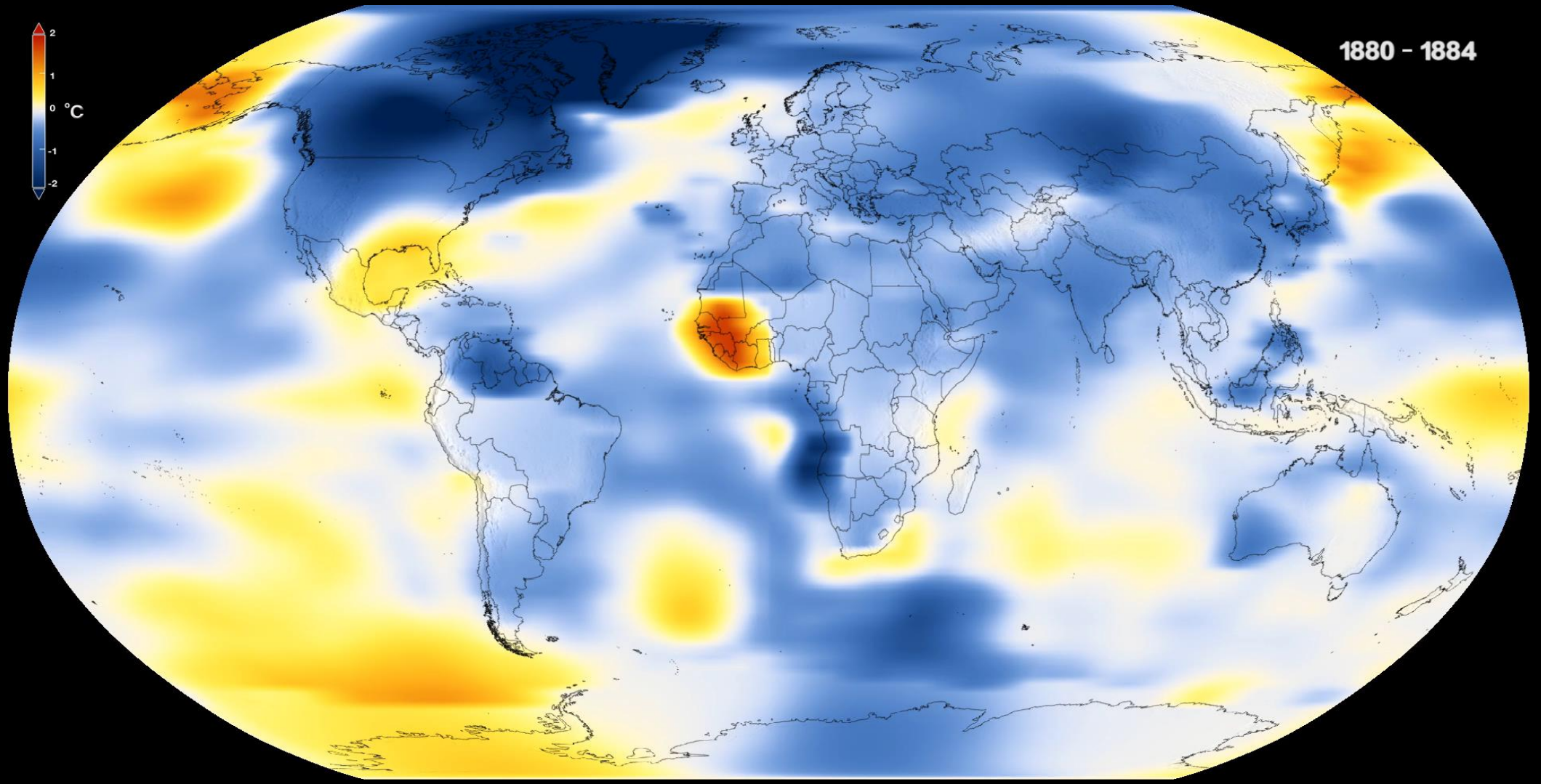
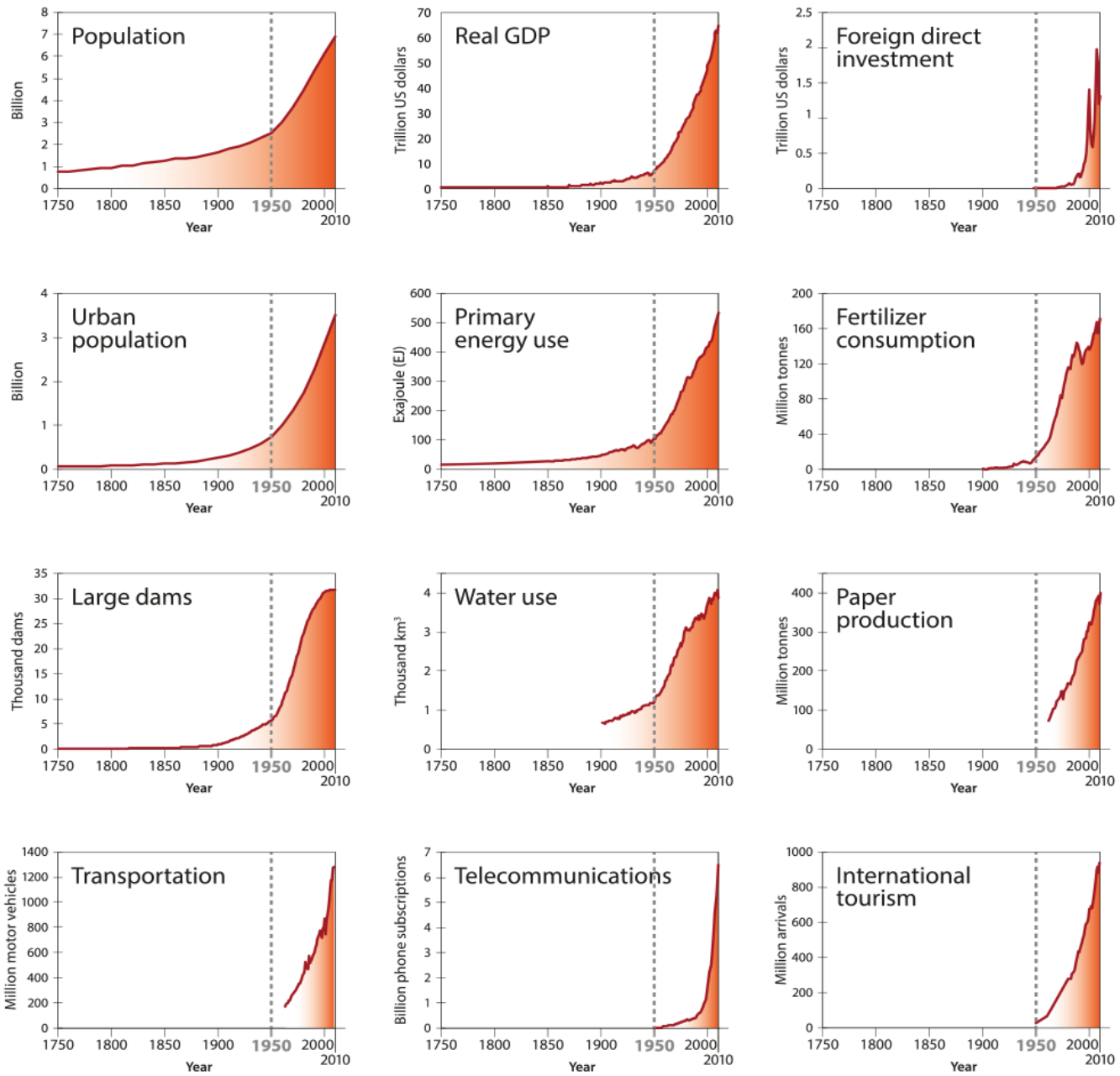

2
1
0 °C
-1
-2
1880 – 1884

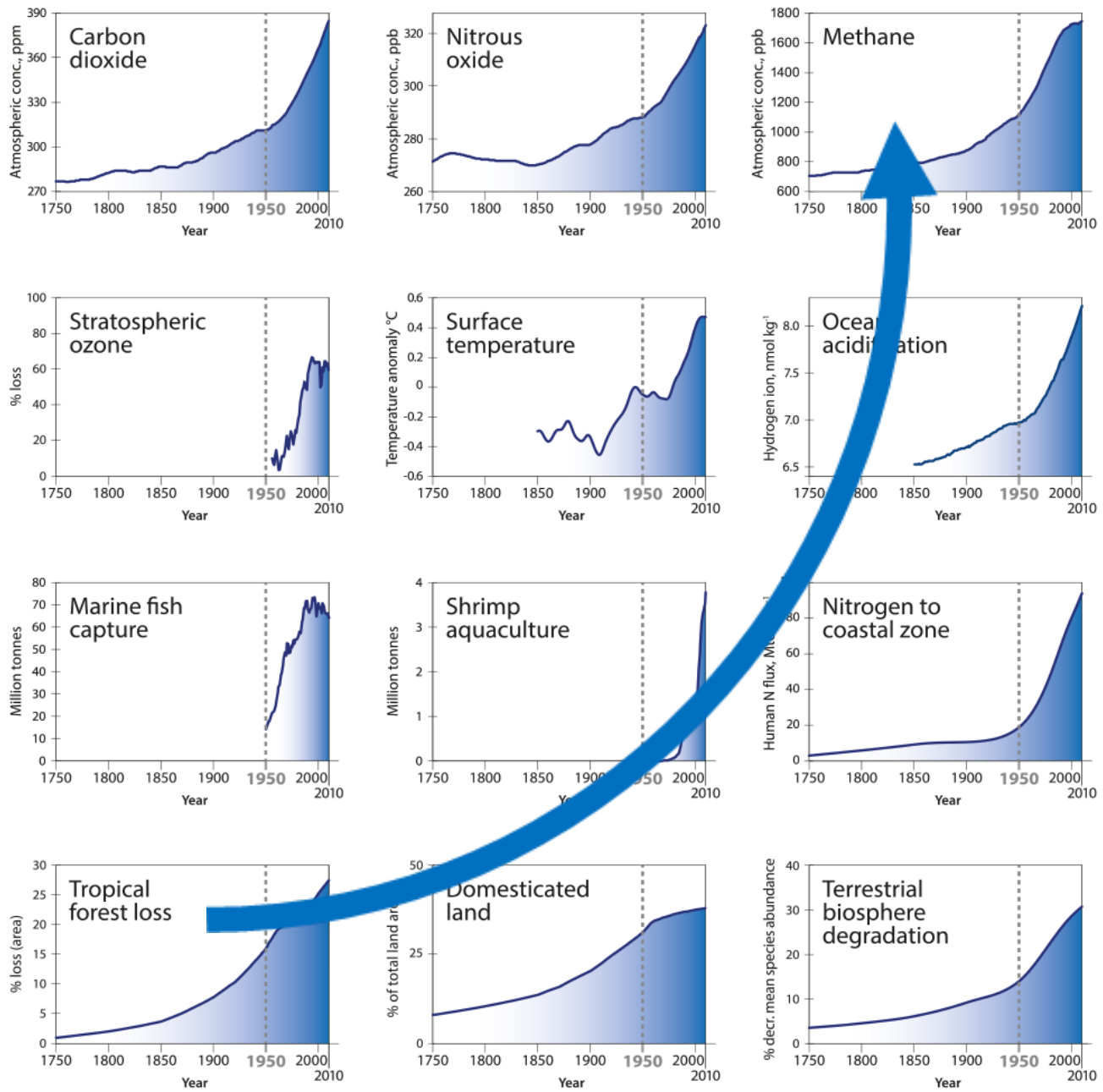
Global trends1



Globalisation of unsustainable systems of production and consumption

European Environment Agency

Global trends2



Expectations/ policy promises

OR

How credible?
How feasible?
What sort of policies and action and knowledge?

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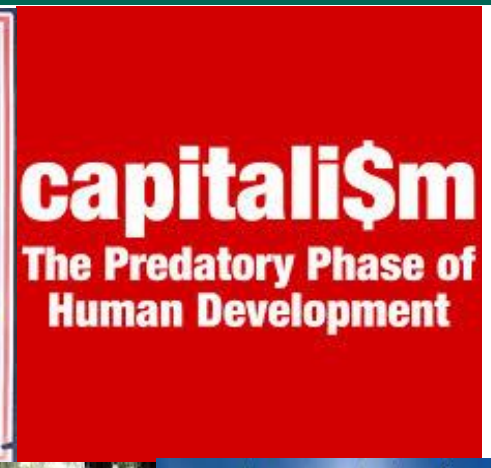
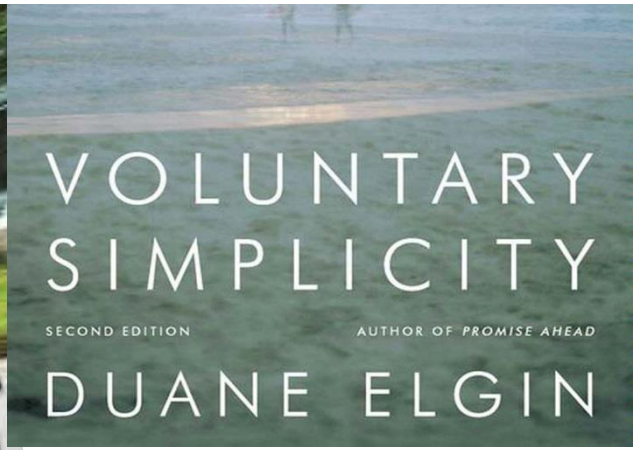
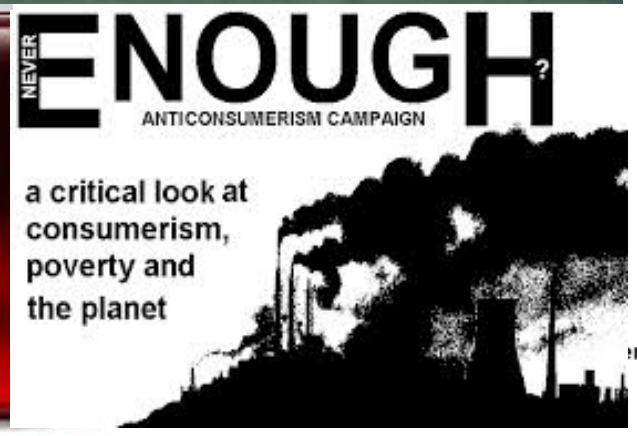
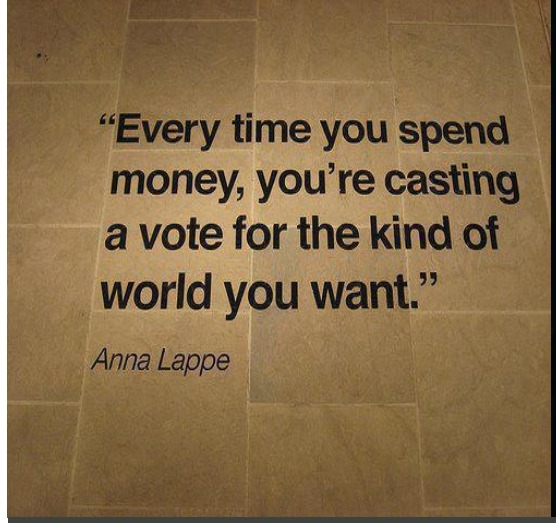
Values, socio-economic analysis and political context

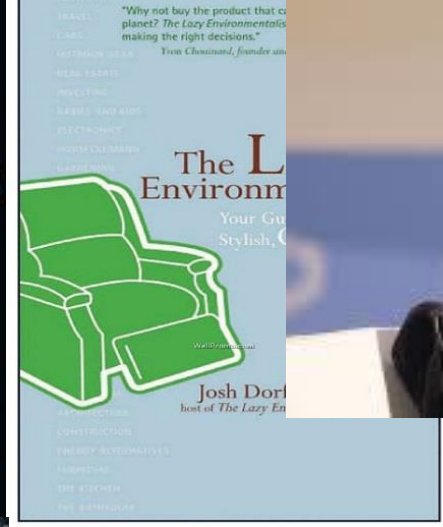


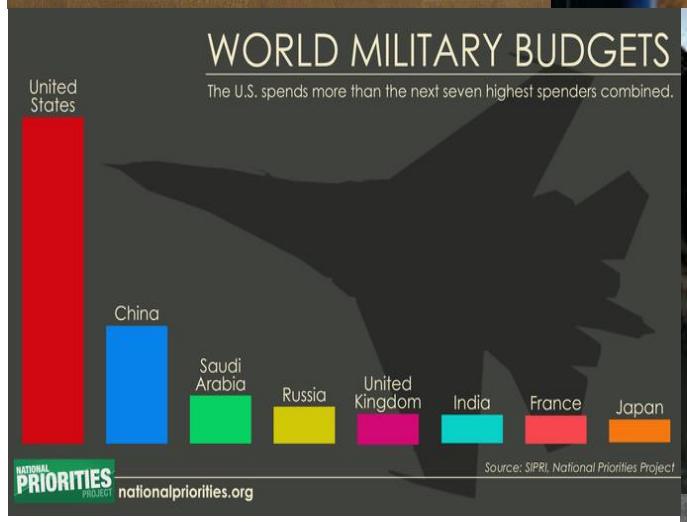




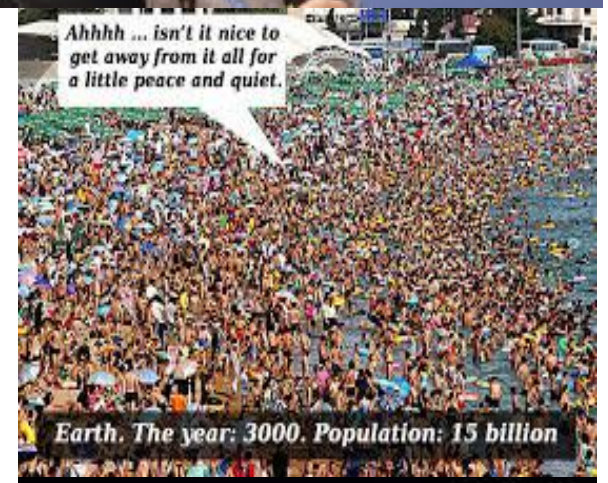

“Every time you spend money, you’re casting a vote for the kind of world you want.”
Anna Lappe

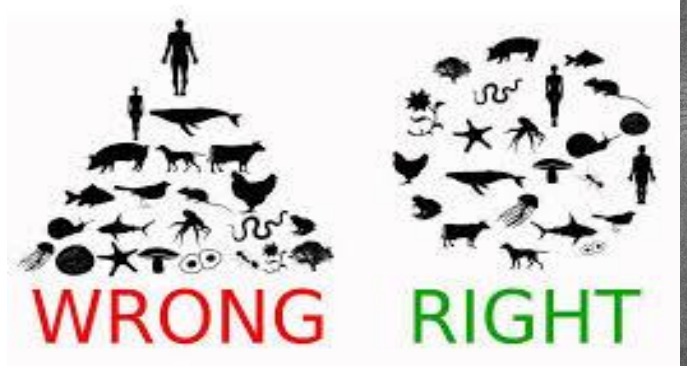

MAGGIE Q
PETA
FIGHT CLIMATE CHANGE WITH DIET CHANGE

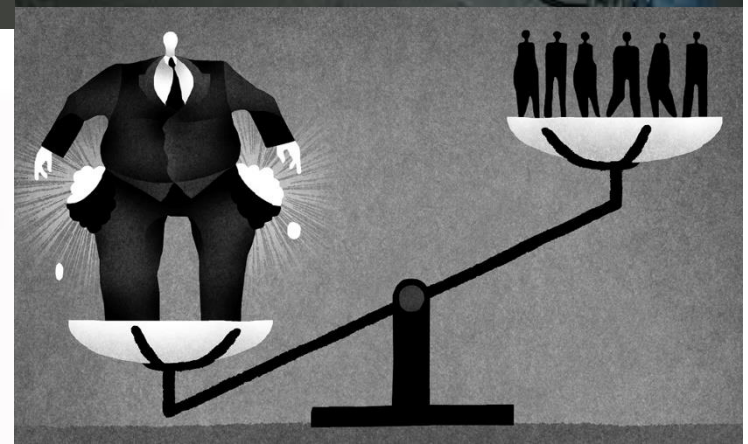


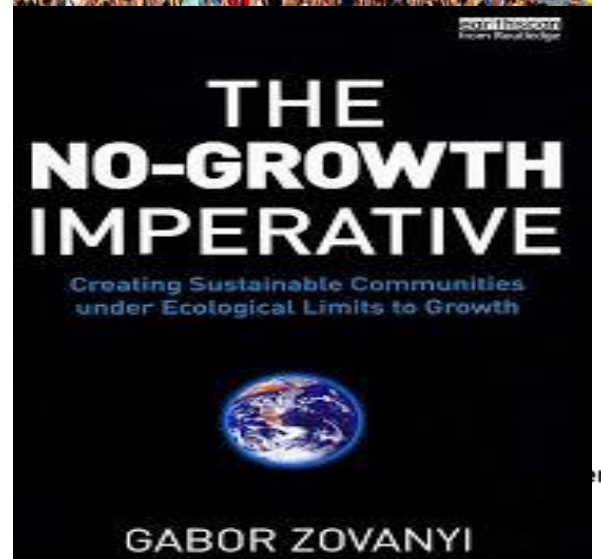

WORLD MILITARY BUDGETS
The U.S. spends more than the next seven highest spenders combined.
United States
China
Saudi Arabia
Russia
United Kingdom
India
France
Japan
Source: SIPRI, National Priorities Project
NATIONAL PRIORITIES PROJECT
nationalpriorities.org


CLIMATE JUSTICE


Ahhhh ... isn't it nice to get away from it all for a little peace and quiet.
Earth. The year: 3000. Population: 15 billion


WRONG
RIGHT




THE NO-GROWTH IMPERATIVE
Creating Sustainable Communities under Ecological Limits to Growth
GABOR ZOVANYI

Global response: Sustainable Development Goals

Vision of the 7th Environment Action Programme

‘In 2050, we live well, within the planet's ecological limits.

Our prosperity and healthy environment stem from an innovative, **circular economy** where nothing is wasted and where natural resources are managed sustainably, and **biodiversity is protected**, valued and restored in ways that enhance our society's resilience.

Our **low-carbon growth** has long been decoupled from resource use, setting the pace for a global safe and sustainable society.’

Source: 7th Environment Action Programme, European Commission, 2013

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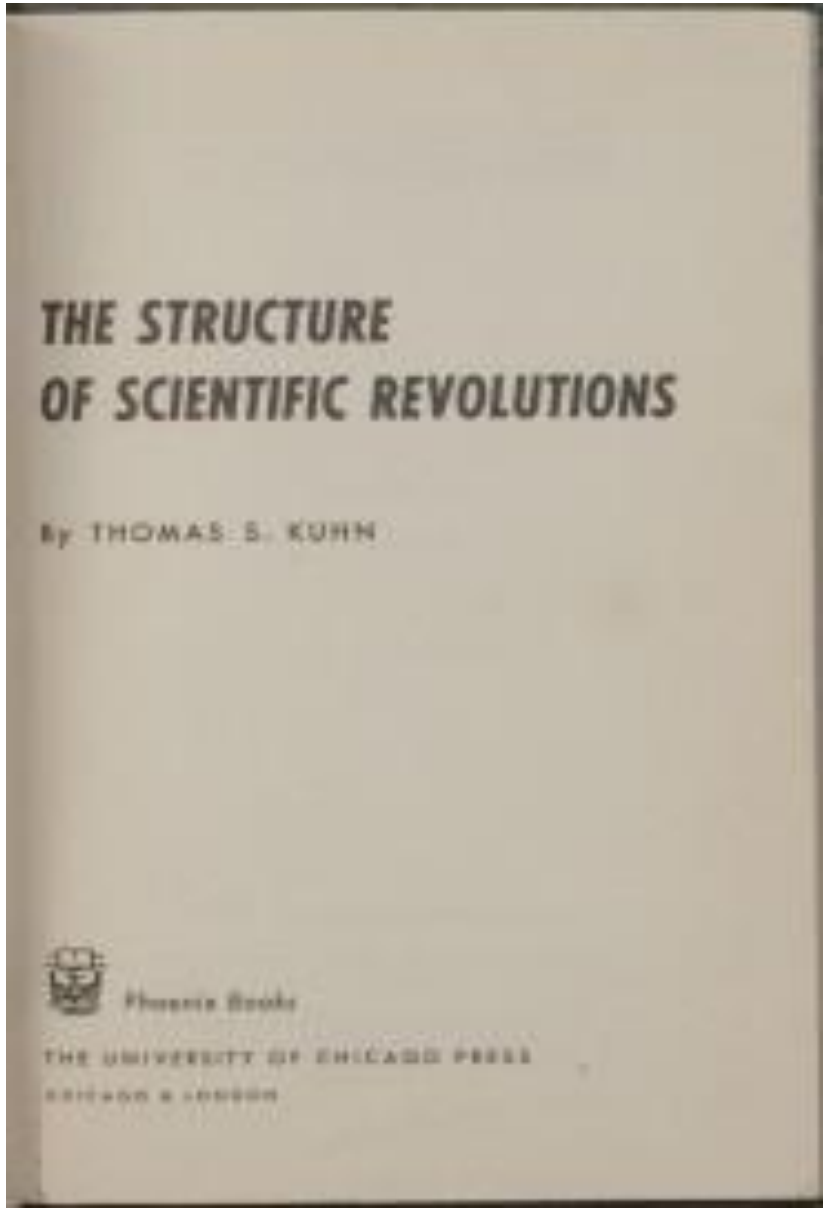
A paradigm shift in knowledge?



Normal Science
Puzzle solving stage
Scientists share common paradigm
-make measurements
-articulate theory
-make predictions

Anomaly
Blame apparatus
Set aside problem
Modify paradigm

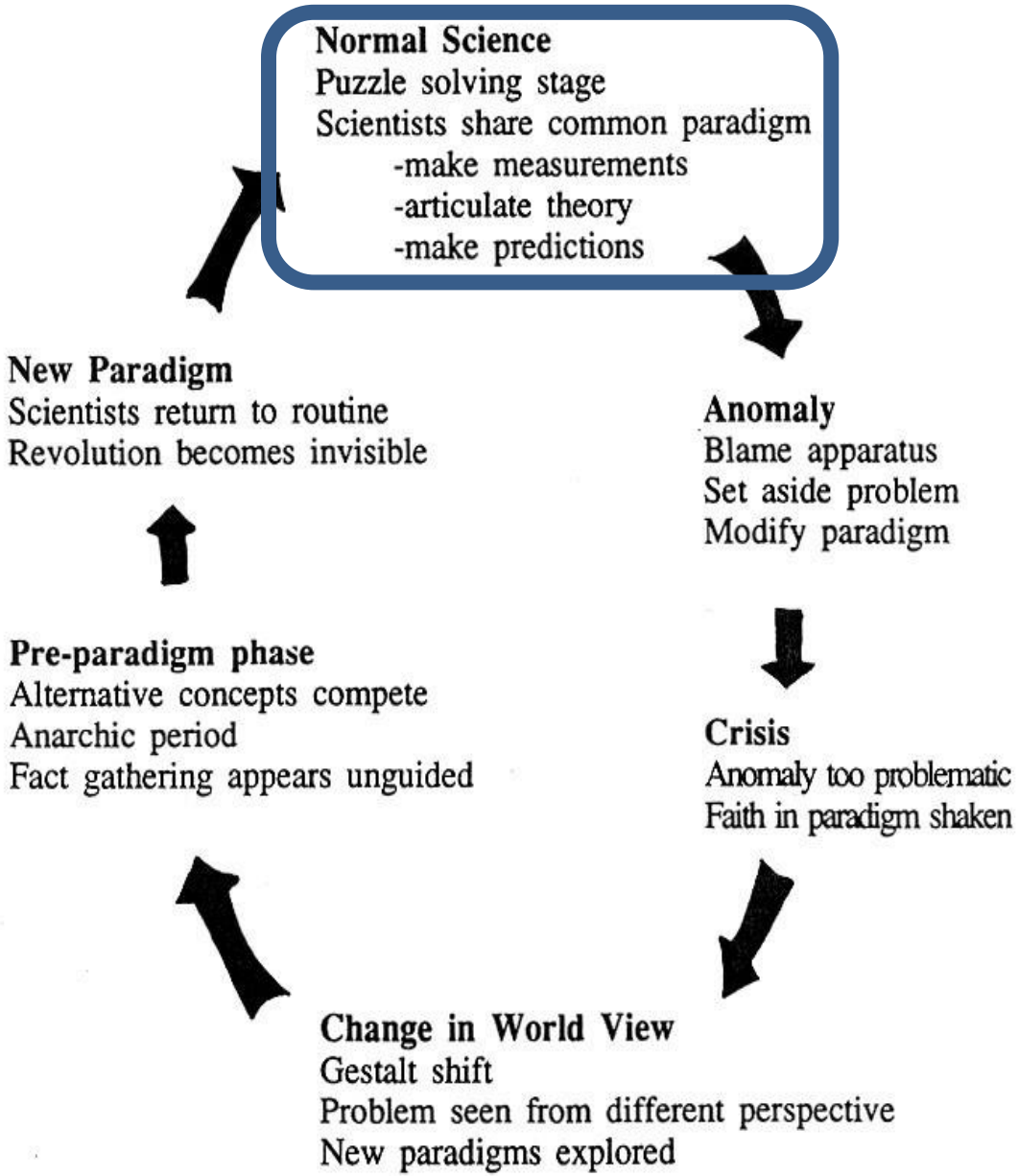
Crisis
Anomaly too problematic
Faith in paradigm shaken

Change in World View
Gestalt shift
Problem seen from different perspective
New paradigms explored

Pre-paradigm phase
Alternative concepts compete
Anarchic period
Fact gathering appears unguided

New Paradigm
Scientists return to routine
Revolution becomes invisible

Normal science/knowledge/policies

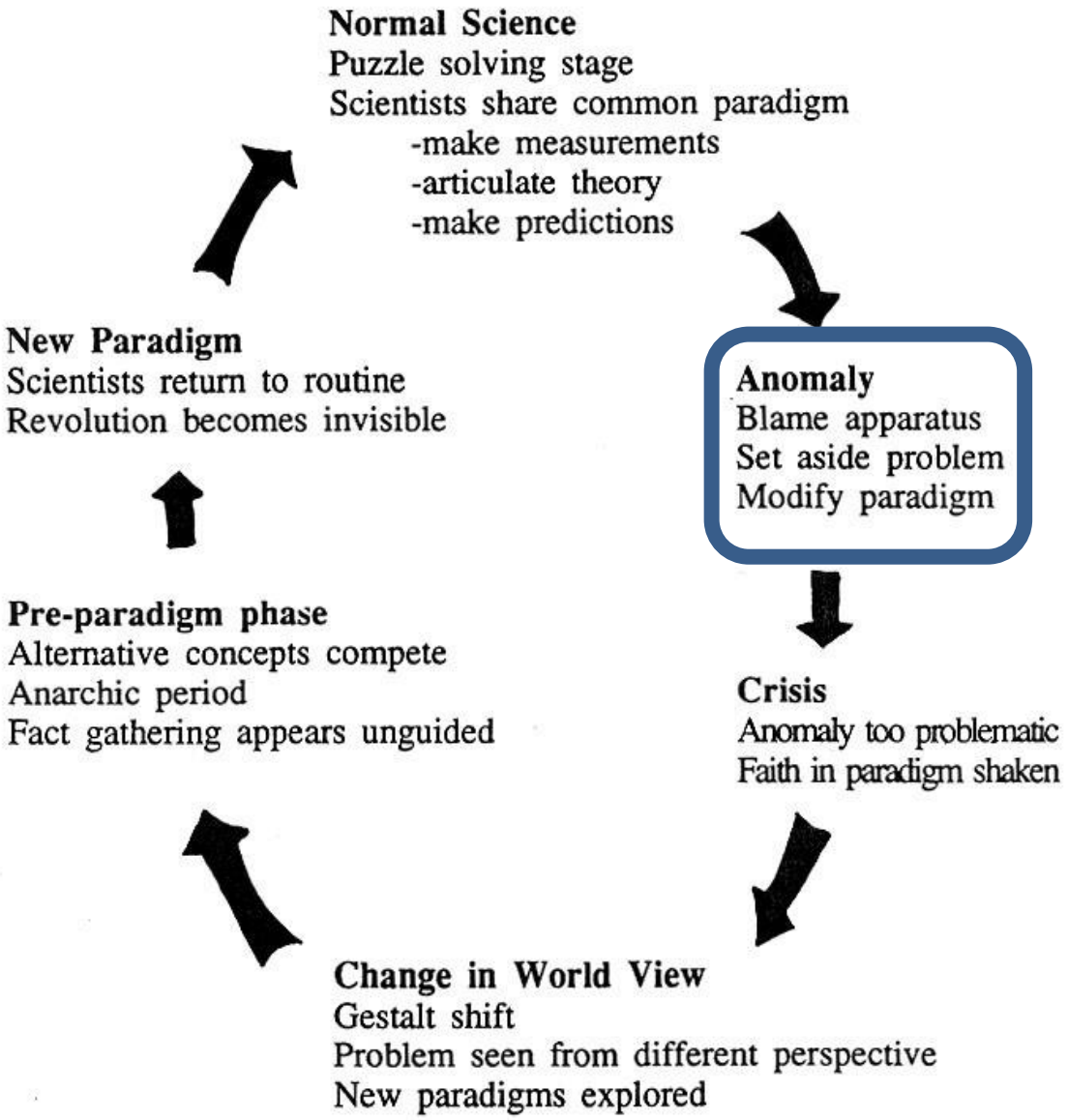


"Over the past 40 years, a broad range of environment legislation has been put in place, amounting to the most comprehensive modern standards in the world. This has helped to address some of the most serious environmental concerns." (7EAP)

Policy theory: initially 'fighting pollution'

Knowledge paradigm: "Union environment policy is based on environmental monitoring, data, indicators and assessments linked to the implementation of Union legislation, as well as formal scientific research…" (7EAP)

Anomalies occur



"However, many environmental trends in the Union continue to be a cause for concern, not least due to insufficient implementation of existing Union environment legislation." (7EAP)

"Addressing some of those complex issues requires tapping into the full potential of existing environmental technology […], as well as increased use of market-based instruments." (7EAP)

Modify policy theory: + Efficiency thinking

Modify knowledge: Effectiveness and efficiency; market-based instruments; BAT studies; voluntary instruments

Priority objective 1: ‘to protect, conserve and enhance the Union’s natural capital’, 2017 results

	EU indicator past trend	Outlook for the EU meeting the selected objective by 2020
Exposure of terrestrial ecosystems to eutrophication due to air pollution		
Gross nutrient balance in agricultural land: nitrogen		
Land take		
Forest: growing stock, increment and fellings		
Status of marine fish stocks		
Abundance and distribution of selected species (common birds and grassland butterflies)		
Species of European interest		
Habitats of European interest		
Status of surface waters		

Priority objective 2: ‘to turn the Union into a resource-efficient, green, and competitive low-carbon economy’

Resource productivity		
Waste generation in Europe		
Recycling of municipal waste		
Use of freshwater resources		
Total greenhouse gas emission trends and projections		
Share of renewable energy in gross final energy consumption		
Progress on energy efficiency in Europe		
Energy consumption by households		
Greenhouse gas emissions from transport		
Animal product consumption (animal protein)		
Share of environmental and labour taxes in total tax revenues		
Employment and value added in the environmental goods and services sector		
Environmental protection expenditure in Europe		

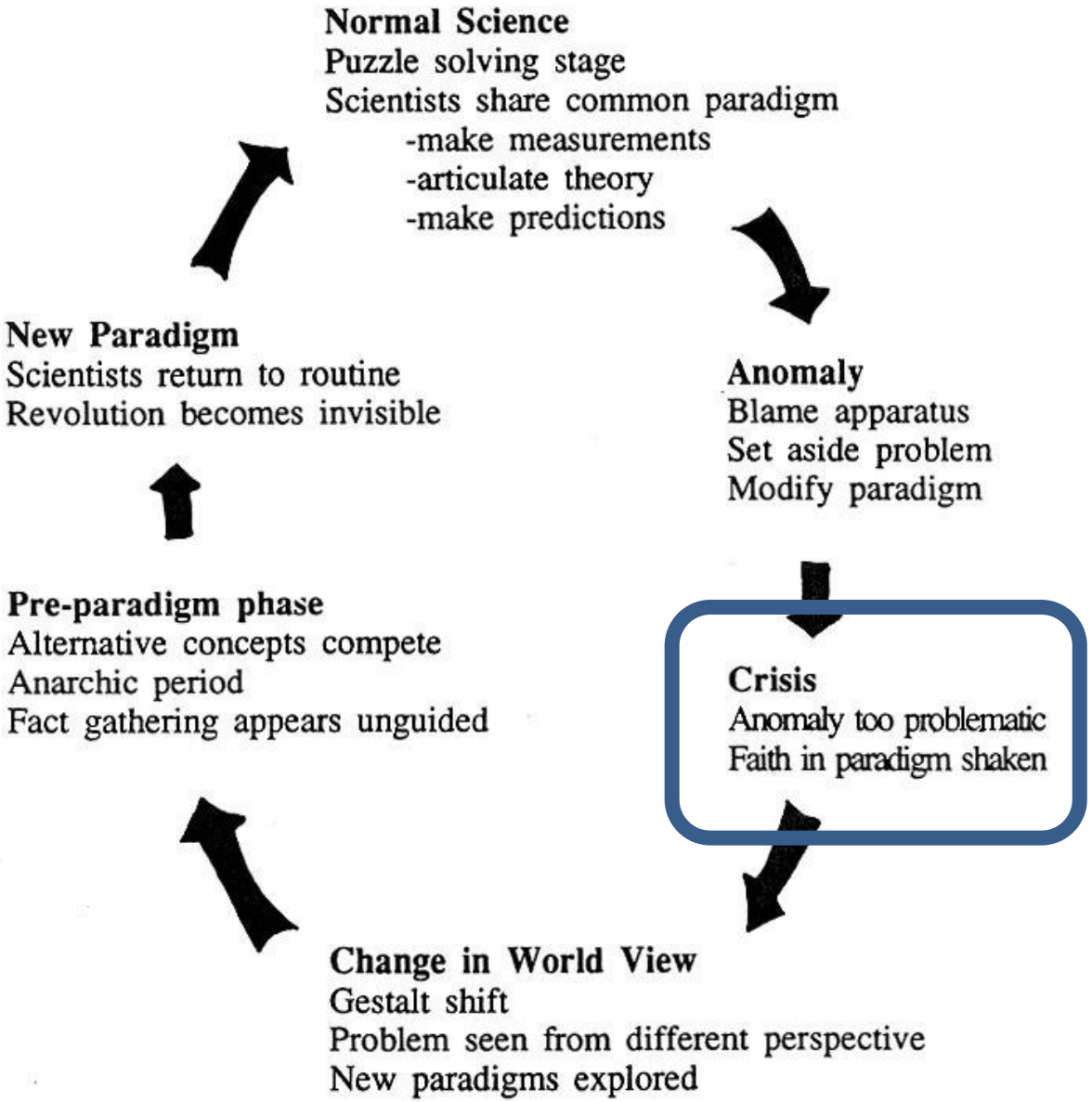
gency

Priority objective 3: ‘to safeguard the Union's citizens from environment-related pressures and risks to health and well-being’

	EU indicator past trend	Outlook for the EU meeting the selected objective by 2020
Exceedance of air quality limit values in urban areas (nitrogen dioxide: NO_2; dust particles: PM_{10}; ozone: O_3; fine particulate matter: $PM_{2.5}$)	NO_2, PM_{10}, $PM_{2.5}$ O_3	
Emissions of the main air pollutants in Europe (sulphur oxides: SO_2; nitrogen oxides: NO_X; non-methane volatile organic compounds: NMVOCs; fine particulate matter: $PM_{2.5}$; ammonia: NH_3)	SO_2, NO_X, NMVOCs, $PM_{2.5}$ NH_3	SO_2, NO_X, NMVOCs, $PM_{2.5}$ NH_3
Bathing water quality		
Number of countries that have adopted a climate change adaptation strategy and/or plan	N.A.	
Exposure to environmental noise		
Consumption of chemicals, by hazard class		
Total sales of pesticides		

Agency

Science/knowledge in crisis



"Together with current wasteful production and consumption systems in the world economy, […] depletion of resources […], generating more pollution and waste, increasing global GHG emissions and exacerbating land degradation, deforestation and biodiversity loss." (7EAP)

"This report has come to the conclusion that traditional incremental approaches based on the efficiency approach will not suffice. Rather, unsustainable systems of production and consumption require fundamental rethinking in the light of European and global realities." (SOER2015)

Efficiency improvements have not secured long-term resilience

Source: EEA. SOER 2015 Synthesis report.

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Challenges for established governance approaches

Are they addressing the underlying drivers of environmental degradation?

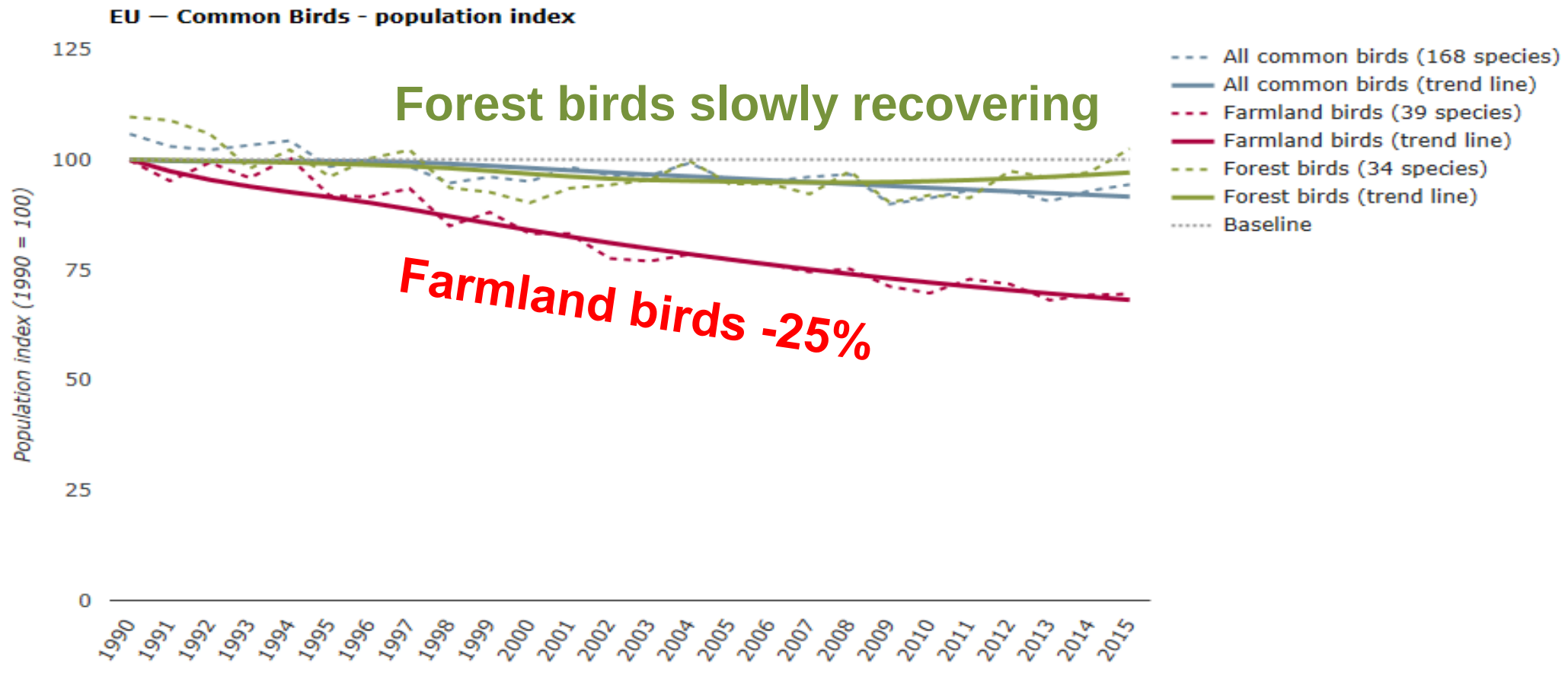
In 2001, the EU set itself the target to halt biodiversity loss in the EU by 2010.

In 2011, the EU set the target to 'halt loss of biodiversity and degradation of ecosystem services in the EU by 2020'.

Next? '2030'? Or, addressing the fundamental drivers?

Source: *Mid-term review of the EU biodiversity*

Common bird species: farmland declining; forest recovering



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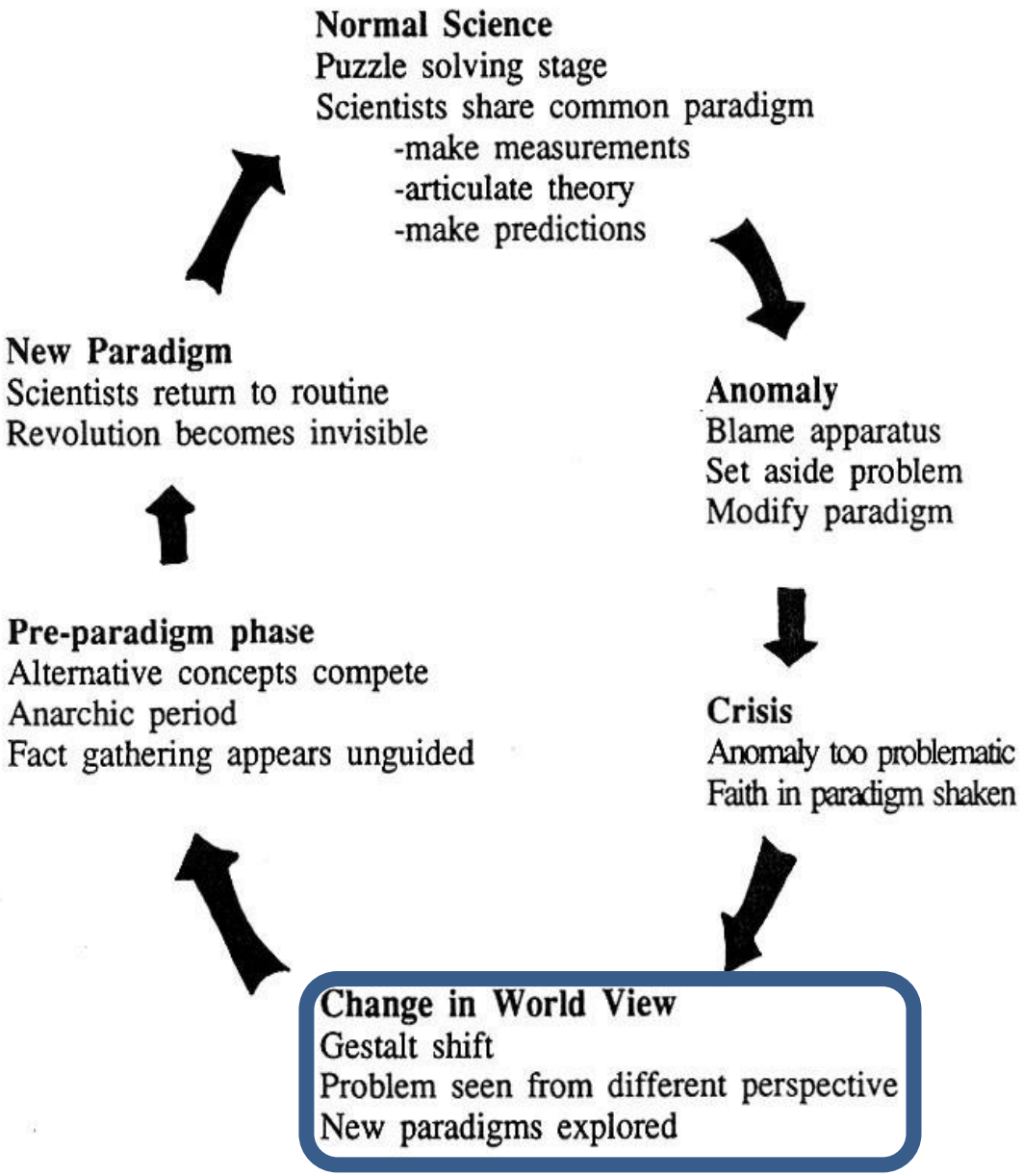
Change in world view/understanding

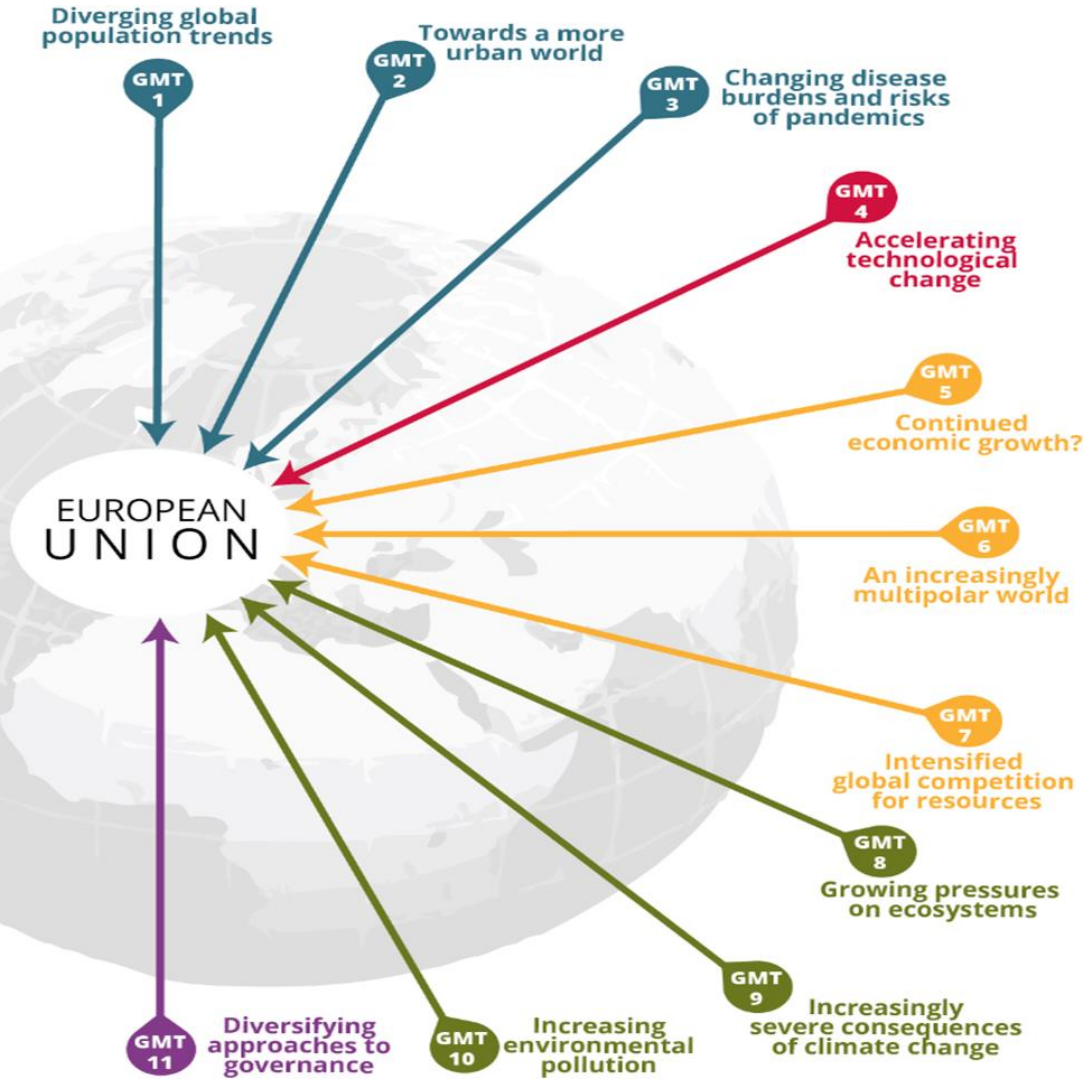


"Biodiversity, including the ecosystem services it provides (natural capital), for its intrinsic value and for its essential contribution to human well-being and economic prosperity."

"However, there are gaps between the available knowledge and that required to meet emerging policy demands.

… systems science; complex environmental change and systemic risks; global megatrends; interplay between socio-economic and environmental factors; transitions in production-consumption systems; environmental risks to health; and the inter-relationships between economic development, environmental change and human well-being." (7EAP)

Changes in understanding



Changing global context: impact and role for Europe?

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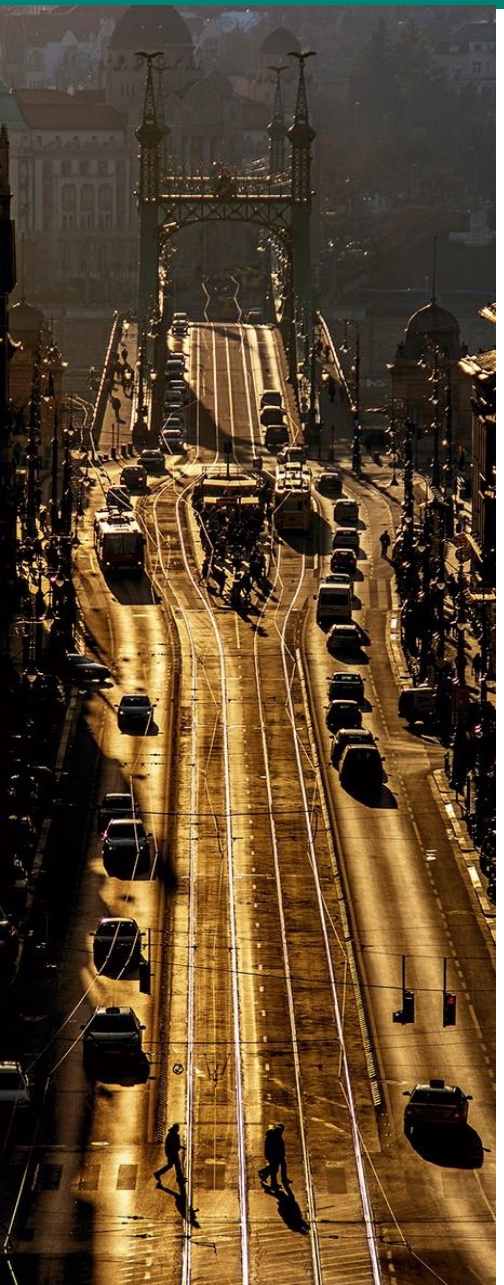
Gestalt Schift in problem analysis and responses?

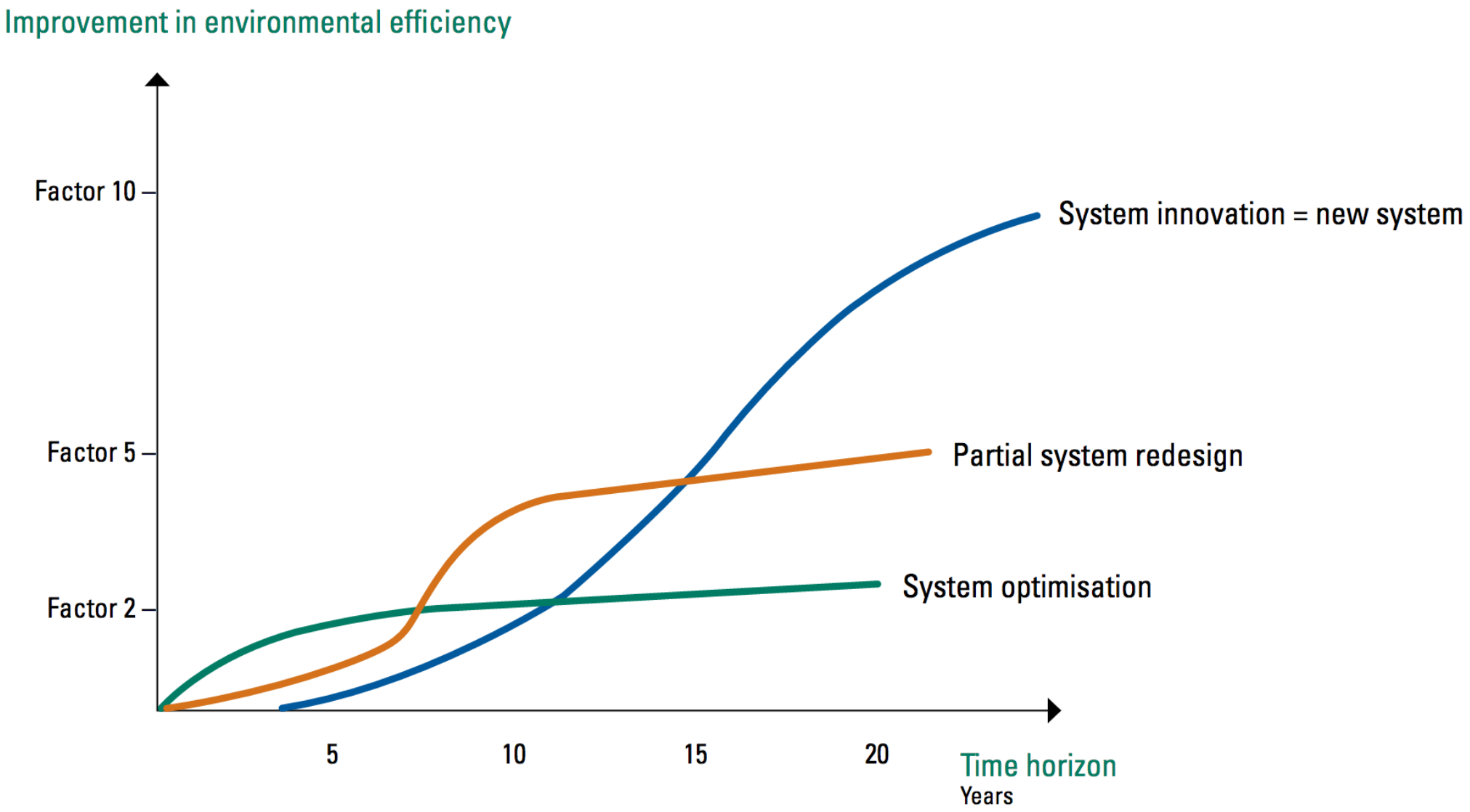


Transitions

= **fundamental shifts** in the **systems** that fulfill societal needs, through profound changes in *dominant* **structures**, **practices**, **technologies**, **policies**, **lifestyles**, **thinking**…

... in line with the sustainable development ambitions and objectives embedded in the Sustainable Development Goals

Achieving needed change requires system innovation

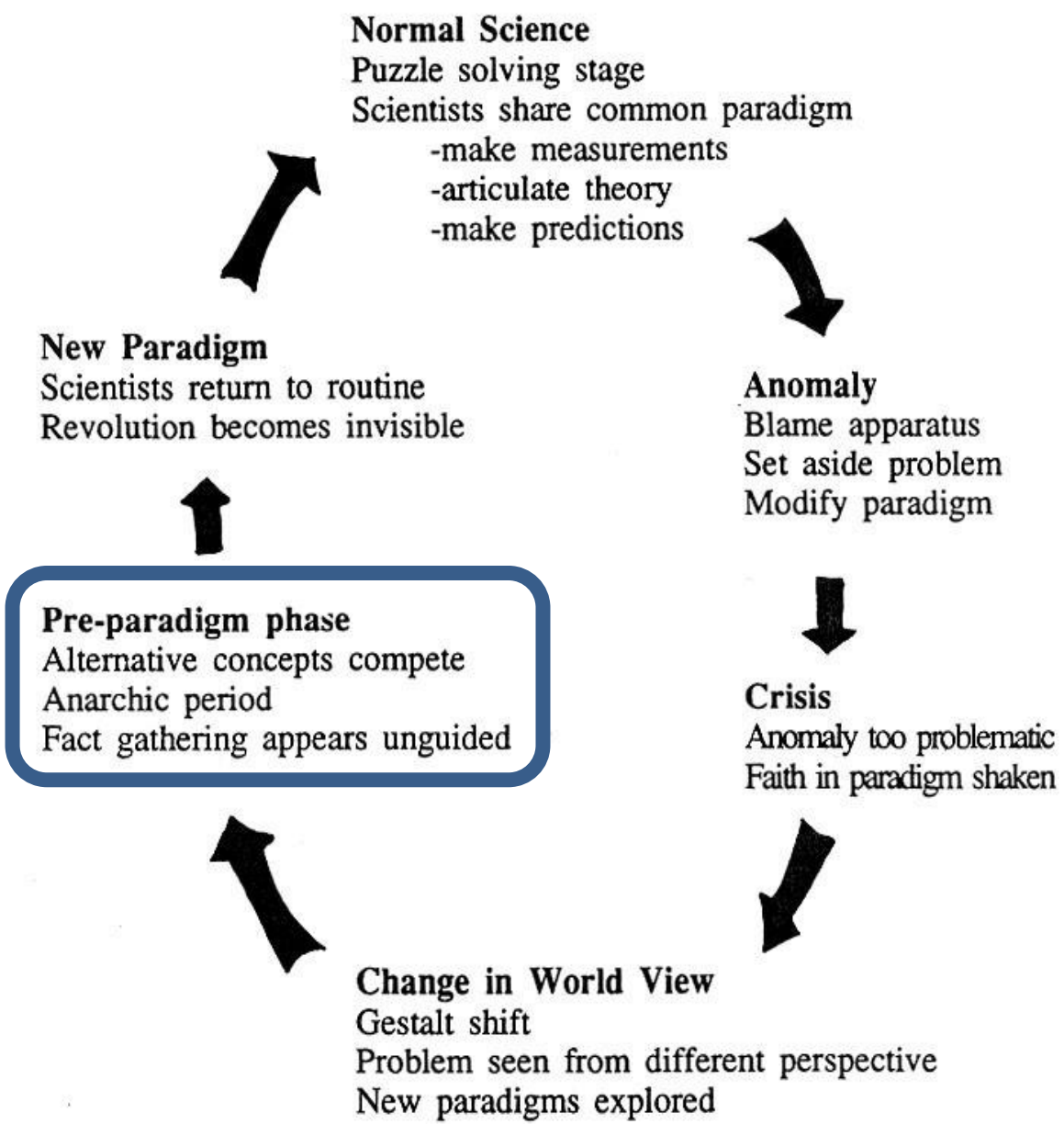


Source: UNEP (from Wetering et al., 1997)

Evolving policy responses: macro-integrated approach

- **Long-term**: 2030-2050-2100
- **Integrated**: e.g. Common Agricultural Policy
- **Systemic**: e.g. Decarbonisation of transport
- **Developing/iterative**: e.g. Circular Economy; Climate and Energy
- Require a **different governance** approach
- Thus, complex, uncertain, **lacking knowledge** (of a certain type)

Pre- or early paradigm



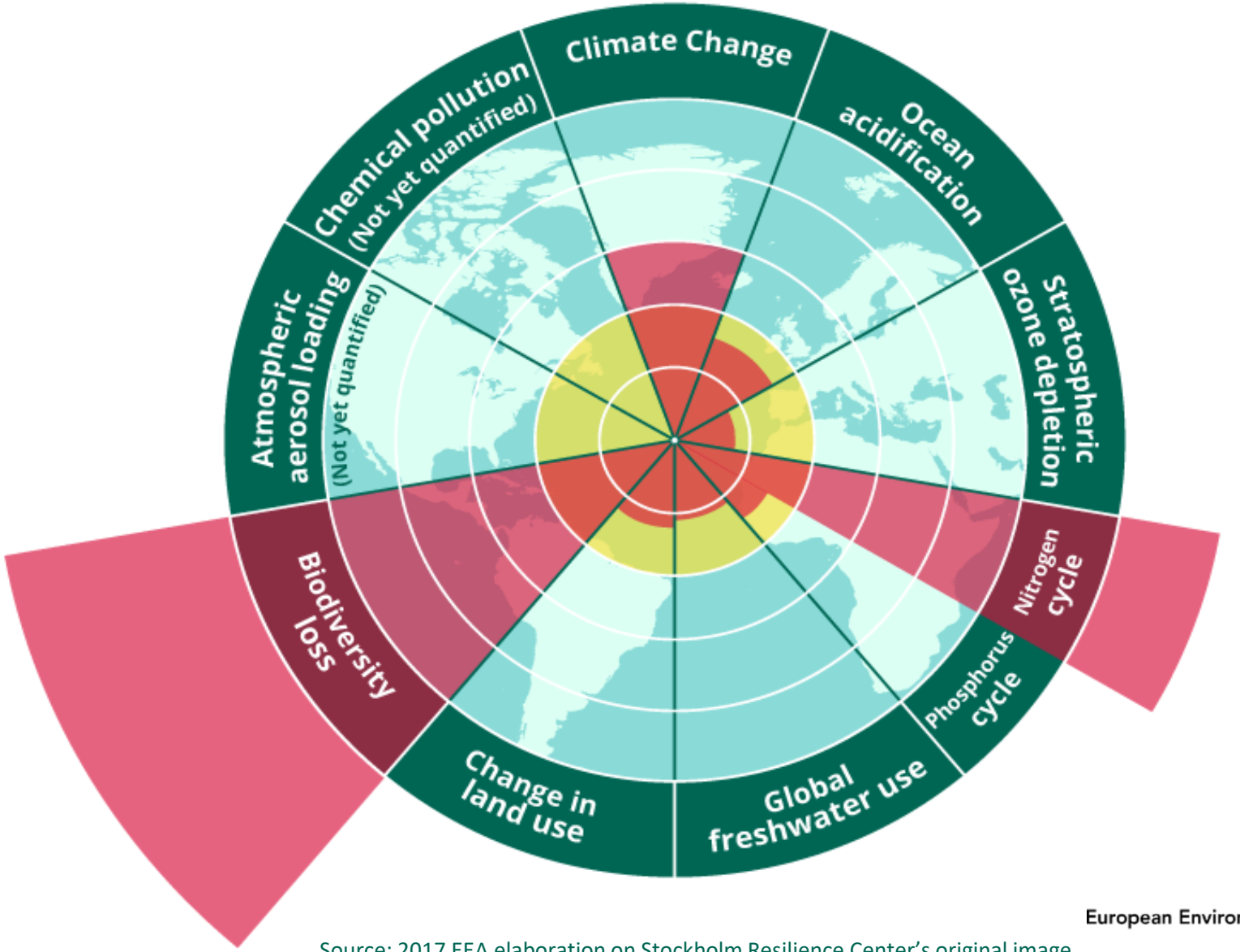
"The transition to a green economy is a long-term, multi-dimensional and fundamental process that will require a move away from the current linear economic model..." (SOER2015)

Alternative concepts:

Europe's emerging transition agenda
Making sense of the Green, Blue, Circular, Resource Efficient, Low Carbon, Bio, Smart, Digital Economy?

Unguided fact gathering: e.g. green economy; green investments; green finance; circular economy; green jobs; smart cities; ...

Planetary boundaries



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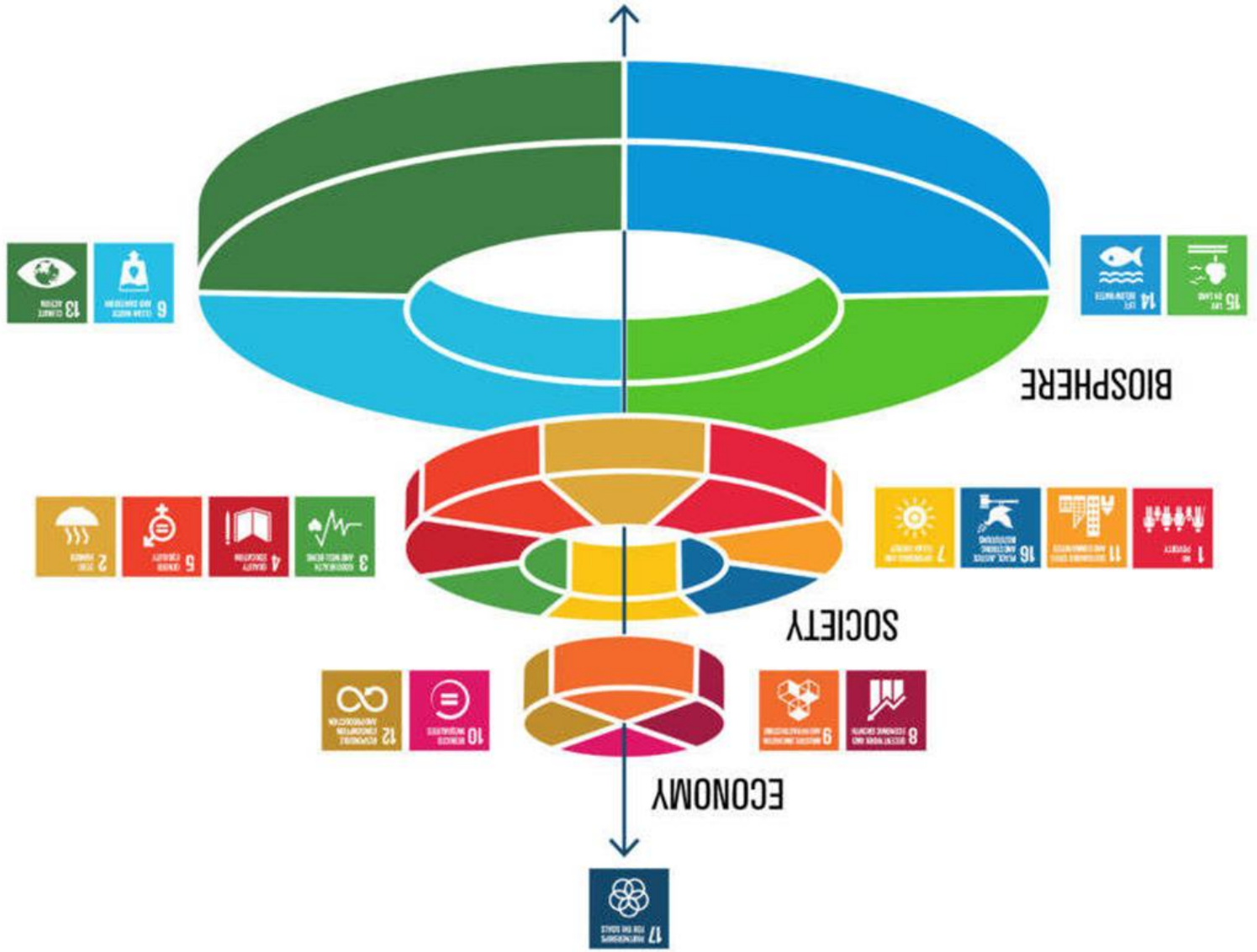
Source: 2017 EEA elaboration on Stockholm Resilience Center's original image

Implicit order?!



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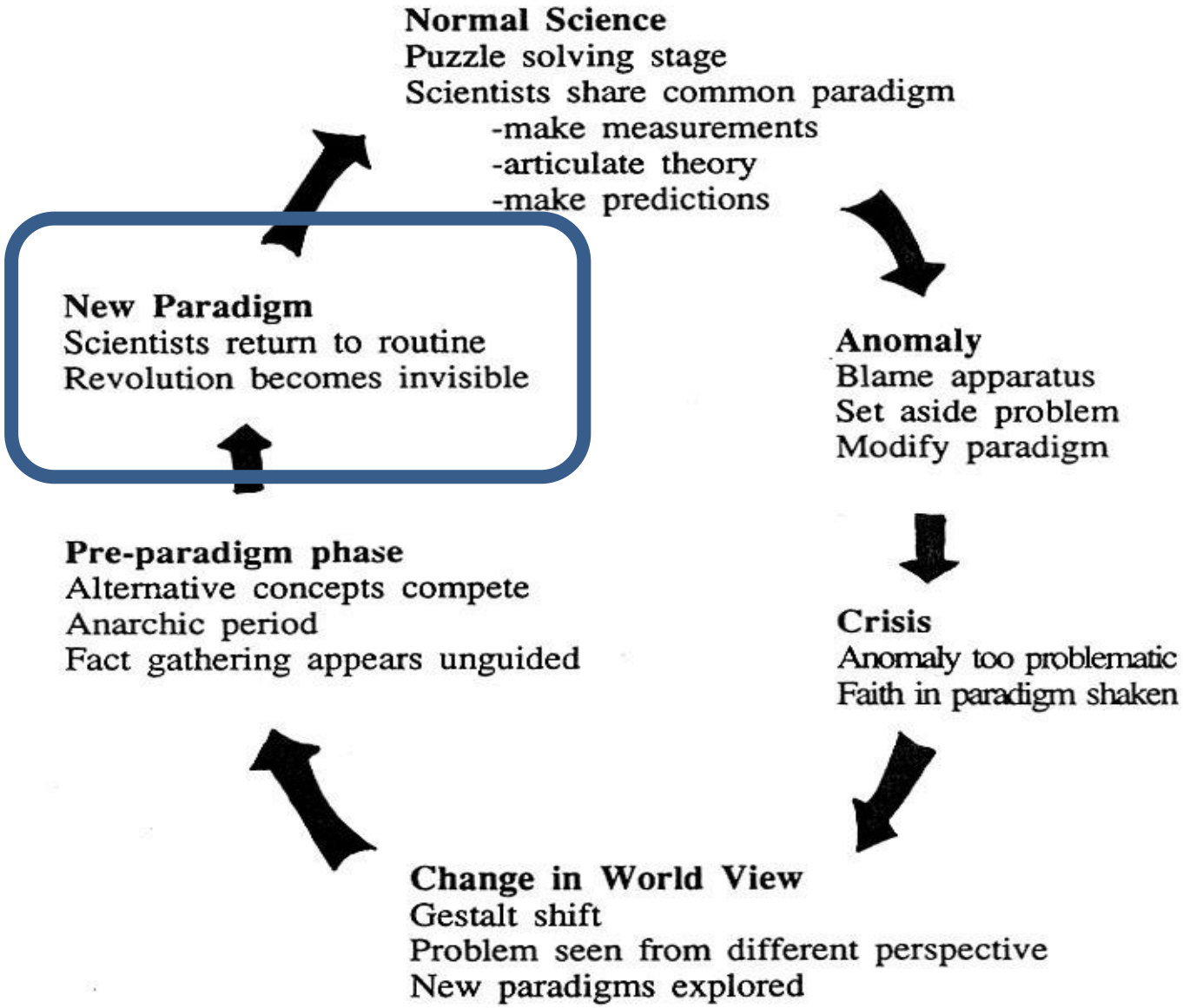
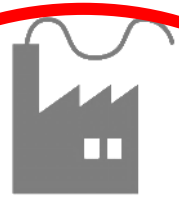
Reflecting on the core of the system?

New paradigm-new normal



1: Informing policy implementation

Air pollution, transport and noise



Industrial pollution

Climate change mitigation and energy

Climate change impacts, vulnerability and adaptation

Water management, resources and ecosystems

Marine and maritime, fisheries and coastal

Biodiversity, ecosystems, agriculture and forests

Urban, land use and soil

Waste and material resources

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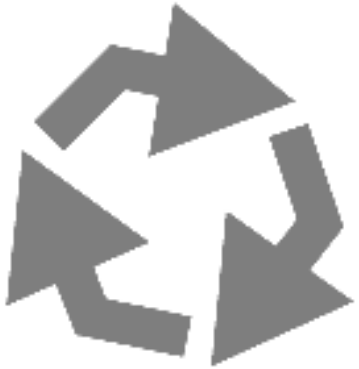
2: Assessing systemic challenges

Resource-efficient economy and the environment



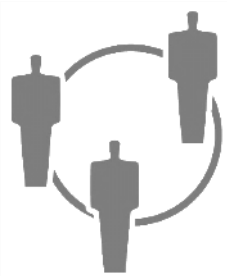
Environment, human health and well-being

Megatrends and transitions

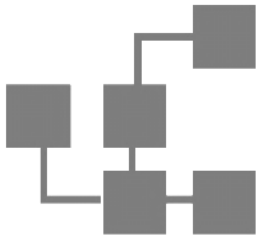
SOER 2015 2020

Sustainability assessments and state of the environment reporting

3: Knowledge co-creation, sharing and use



Networking and partnerships



Technical systems development

Capacity building in West Balkan and European Neighbourhood countries

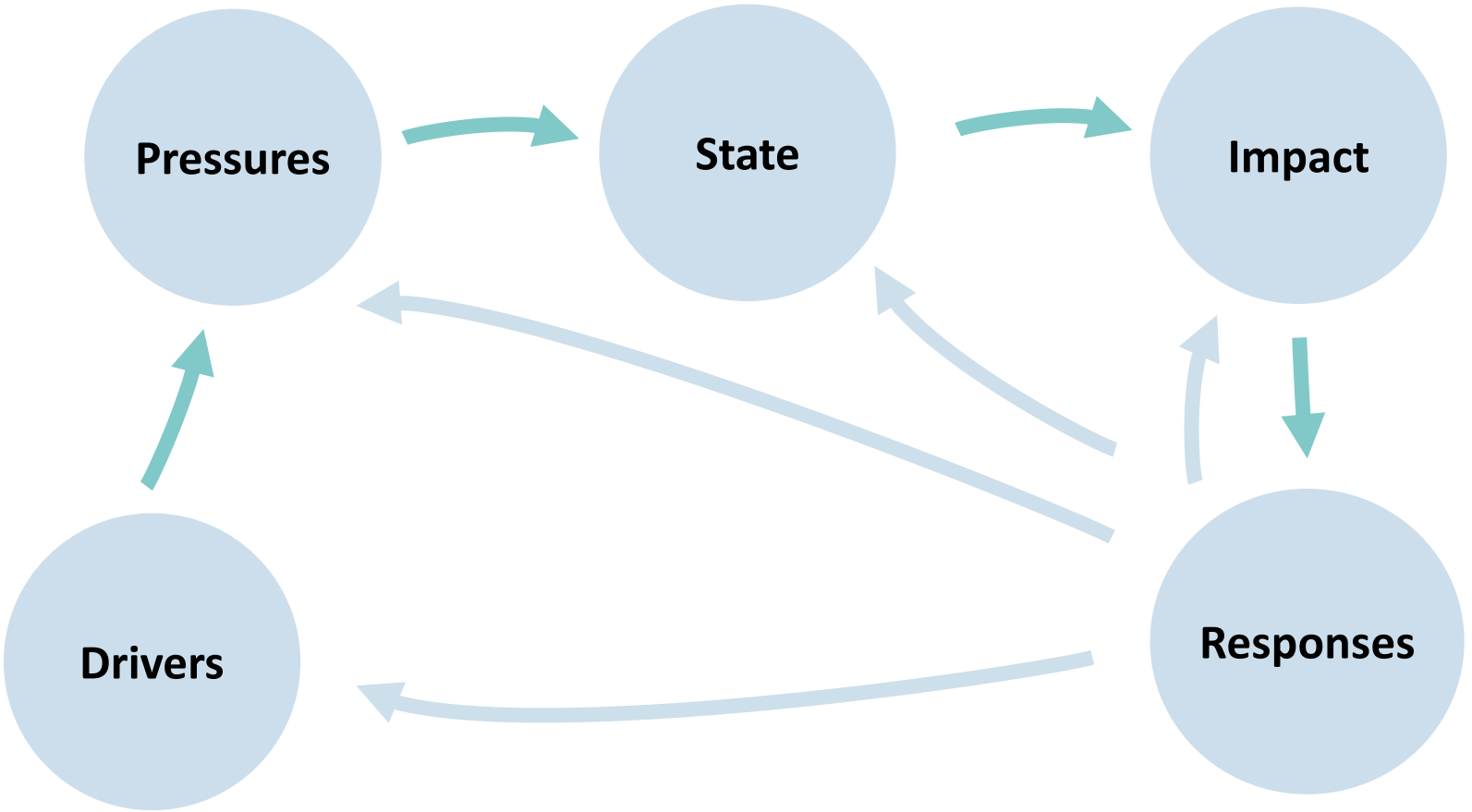
Communication, outreach and user analysis

Monitoring, data and information management

Quality management and operational services

Copernicus operational services

The DPSIR framework



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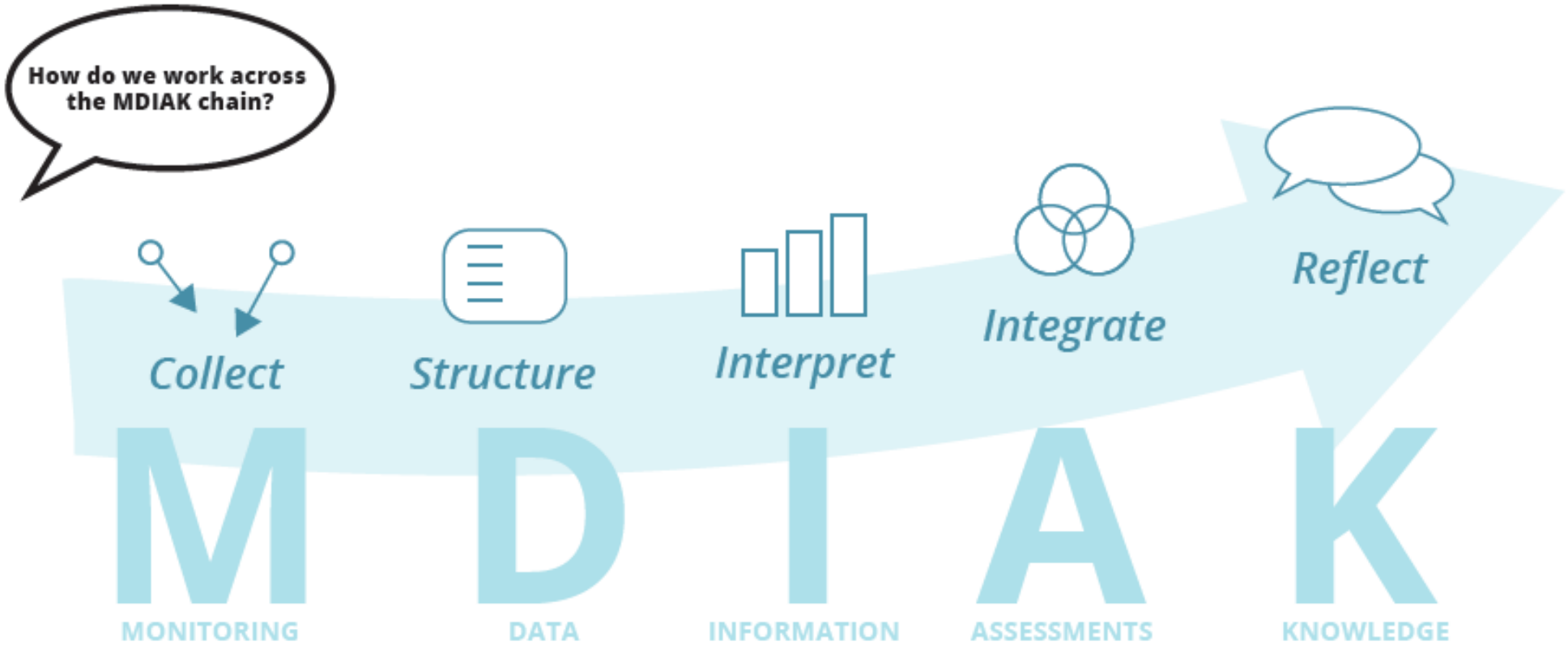
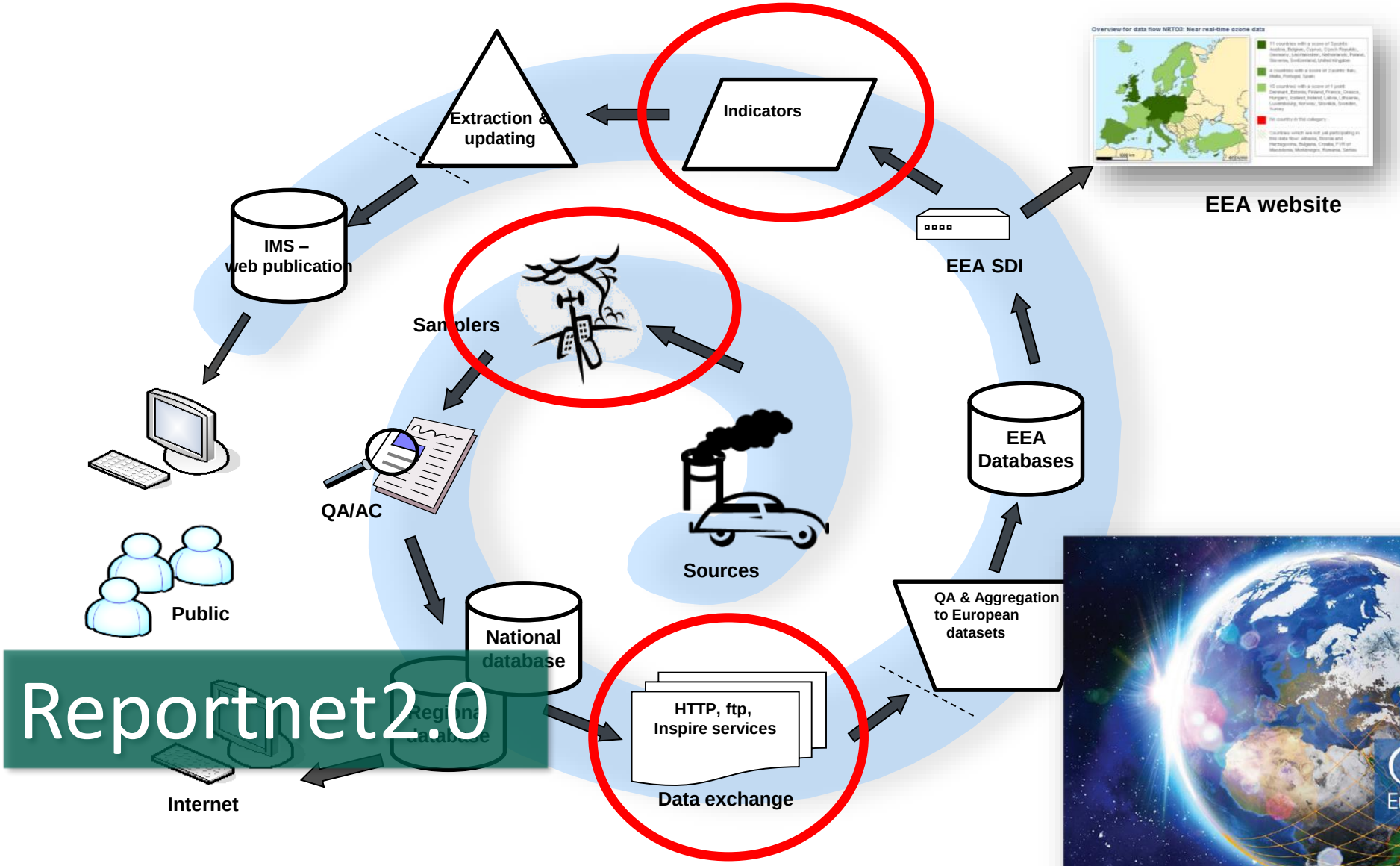
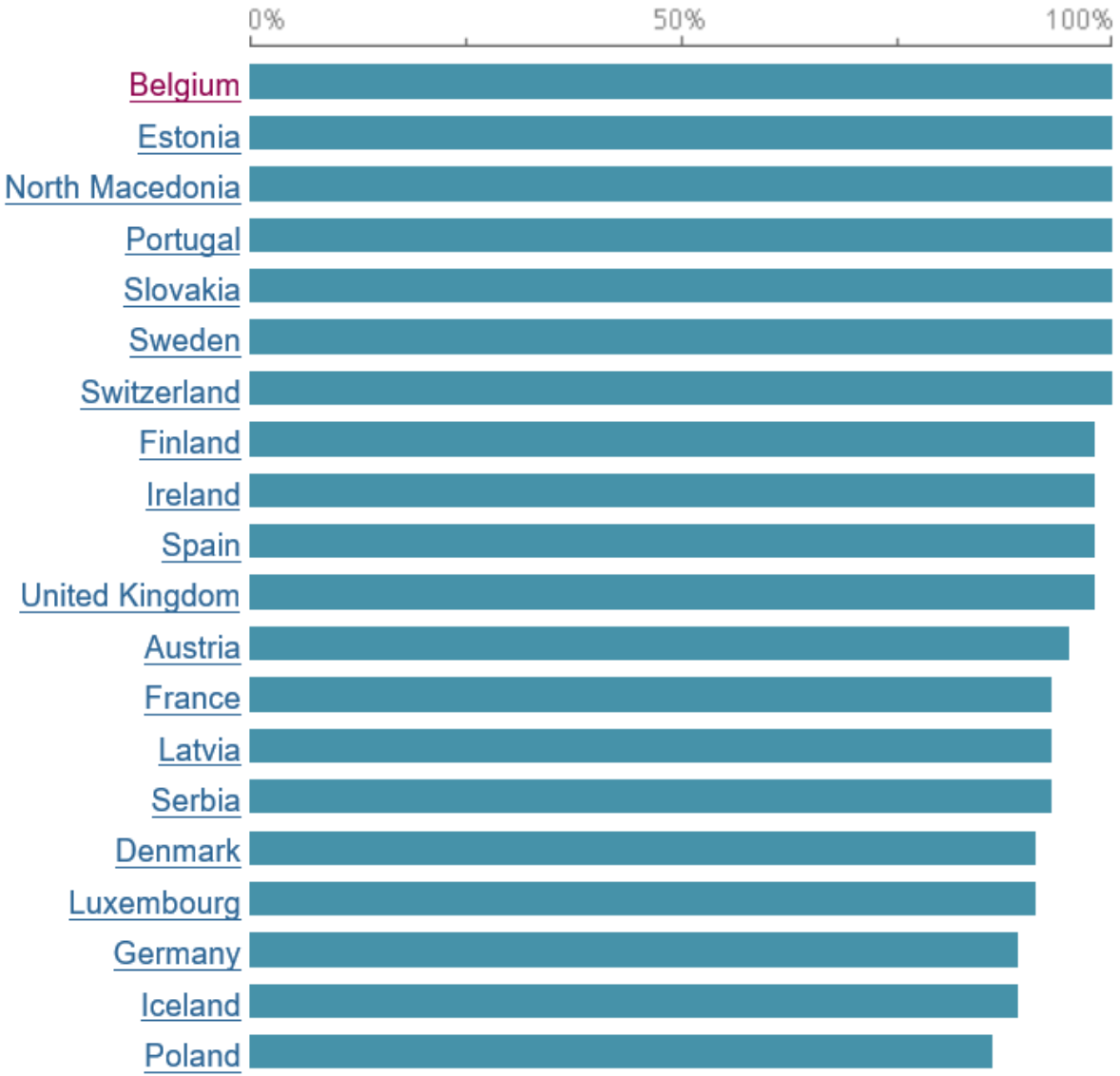
MDIAK

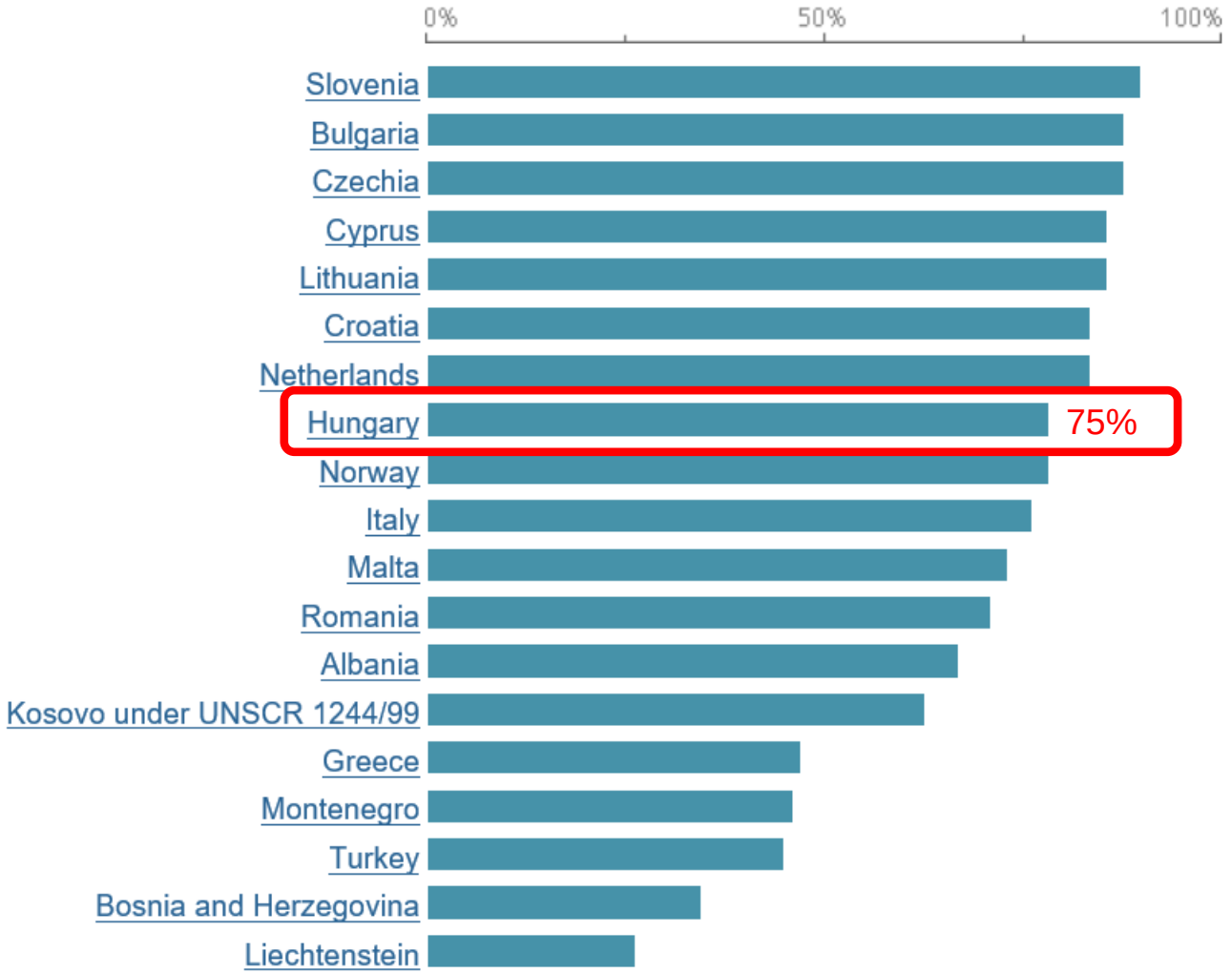

How do we work across the MDIAK chain?
Collect
Structure
Interpret
Integrate
Reflect
M
D
I
A
K
MONITORING
DATA
INFORMATION
ASSESSMENTS
KNOWLEDGE

M-D-I production process



Eionet core data flows 2018





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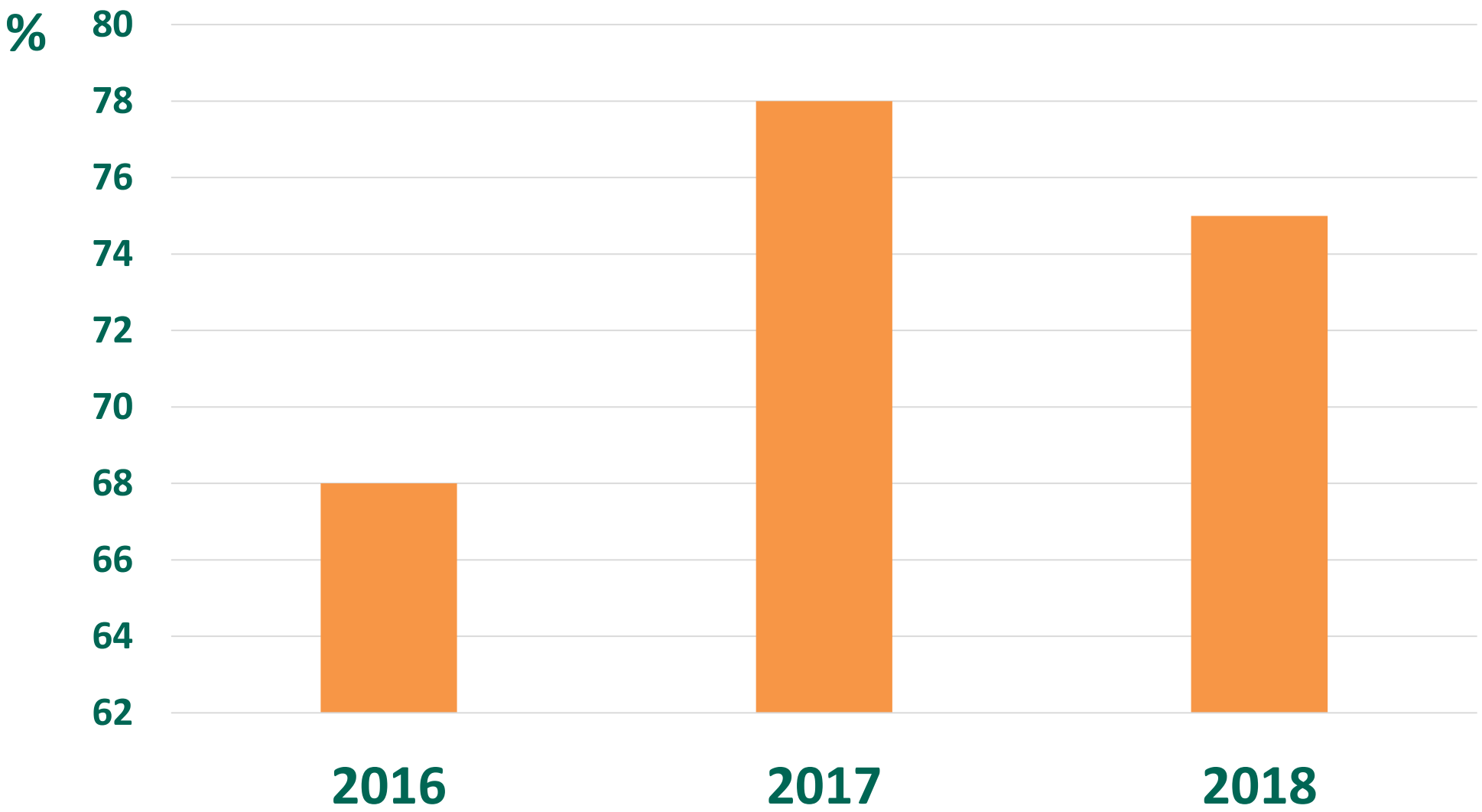
Eionet core data flows: Hungary 3-year performance



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EIONET 1994-2019-2025

- Is the current structure adapted to the new developments?
- Are we jointly developing the right capacities?
- Are we focusing on the right things?
- Are we focusing on the right processes?
- Should we be more proactive?

Thank you

Hans.Bruyninckx@eea.europa.eu

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