PIP TRAVEL GUIDE

on climate change and system innovation

PIONEERS INTO PRACTICE 2015

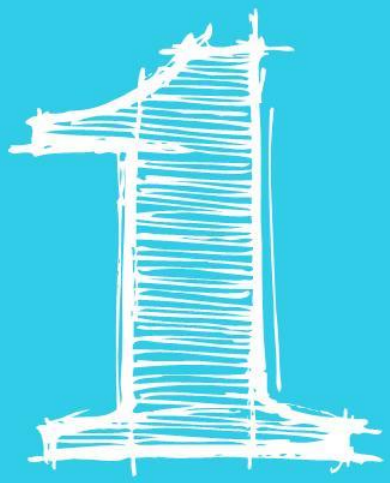
Regional Innovation & Implementation Community (RIC) – Climate KIC

European Institute of Innovation & Technology (EIT)

Edited by: climate-kic 2015

Content by: Javier de Vicente López and Lydia Sterrenberg.

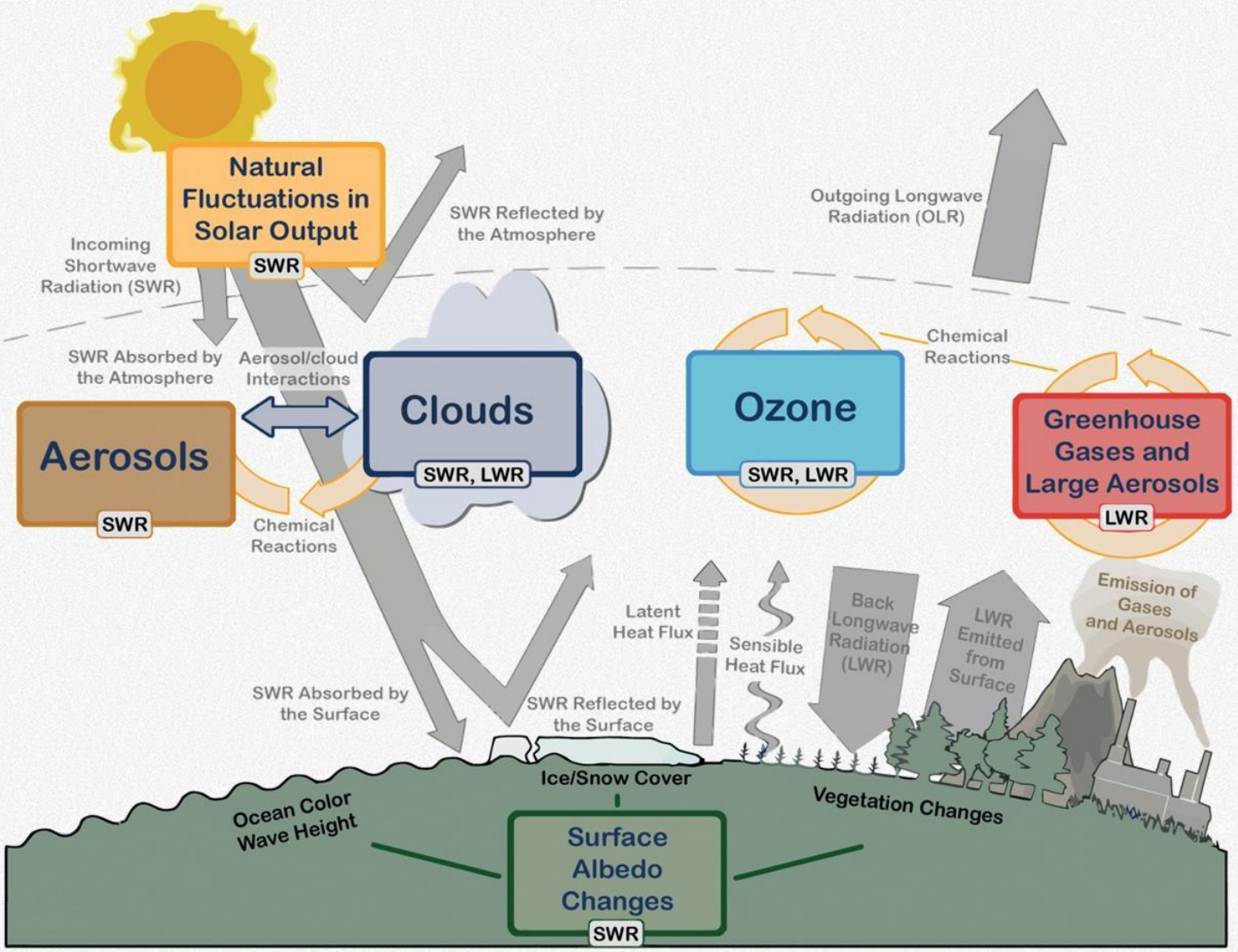
Material prepared as part of the mentoring activities for the Pioneers into Practice Programme, 2015, an initiative of the Climate-KIC.



CLIMATE CHANGE

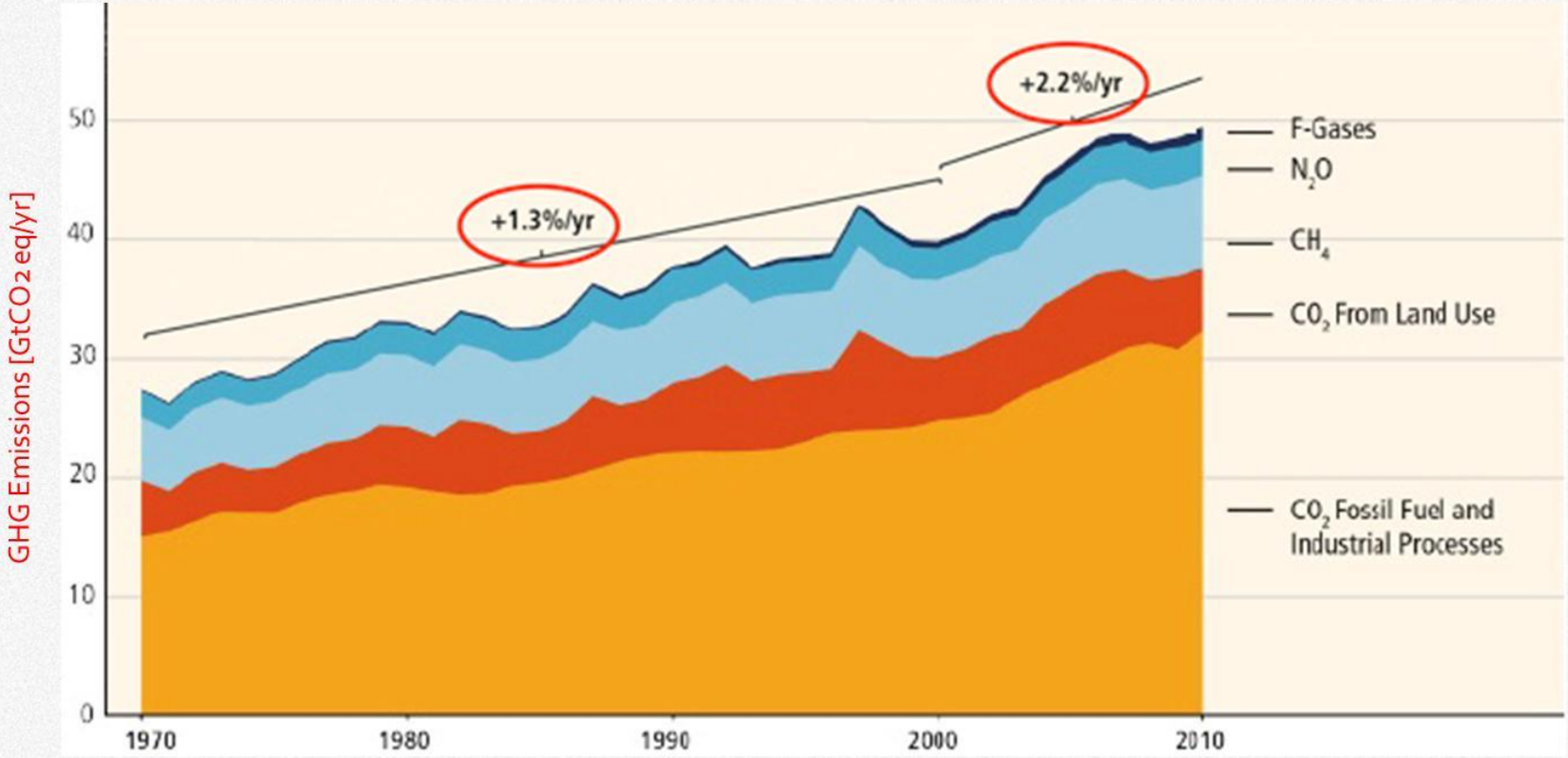
an overview

Climate change and the greenhouse effect

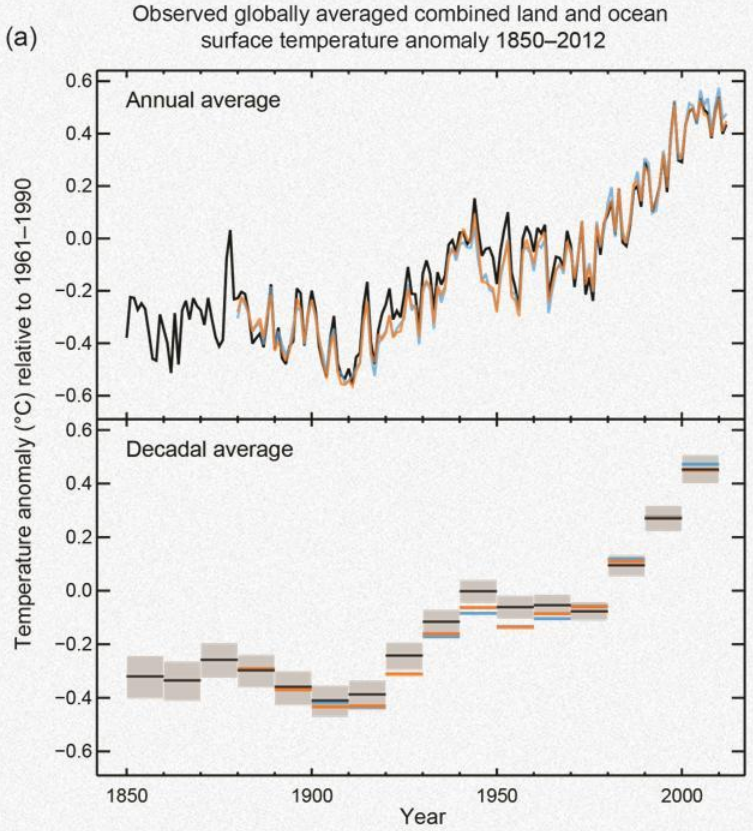


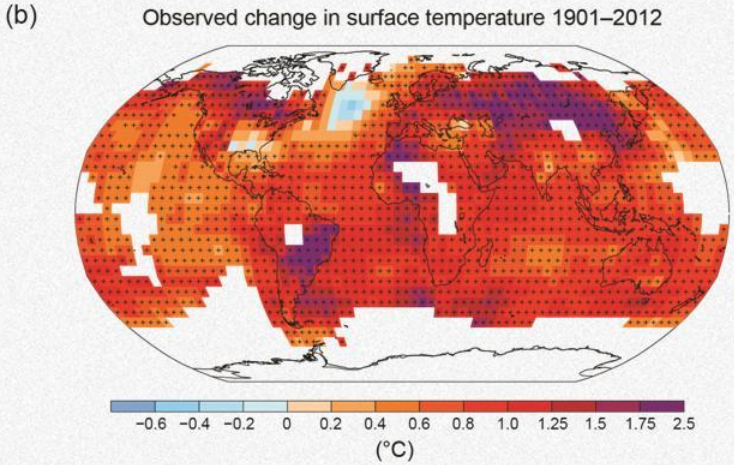
Main drivers of climate change. Source: .

BERLIN, 13 April 2014 – The 5th report by the IPCC shows that global emissions of GHG have risen to unprecedented levels despite a growing number of policies to reduce climate change. Emissions grew more quickly between 2000 and 2010 than in each of the three previous decades.



Source: IPCC Fifth Assessment Report





2 degrees

That´s the amount the planet will be allowed to warm. Leaders of the world´s eight richest economies have agreed to the historic deal setting 2 degrees Celsius as the maximum limit for global temperature rise.

Source: IPCC Fifth Assessment Report

Main drivers of GHG emissions

2010 GHG emissions

The short/mid term EU pathway

2020.

In March 2007, a set three key objectives for 2020 was adopted by the EU countries

- A 20% reduction in EU greenhouse gas emissions from 1990 levels;
- Raising EU energy consumption from renewable resources to 20%;
- A 20% improvement in the EU's energy efficiency.

2030.

The agreement reached by EU 23rd October 2014, Europe set out its stall on climate change.

Reduce its greenhouse gas emissions by 40% by 2030;
Increase the share of renewable energy y consumption to at least 27%;
Increase the energy efficiency of its buildings by at least 27%...

The long term EU pathway

Source: European Commission

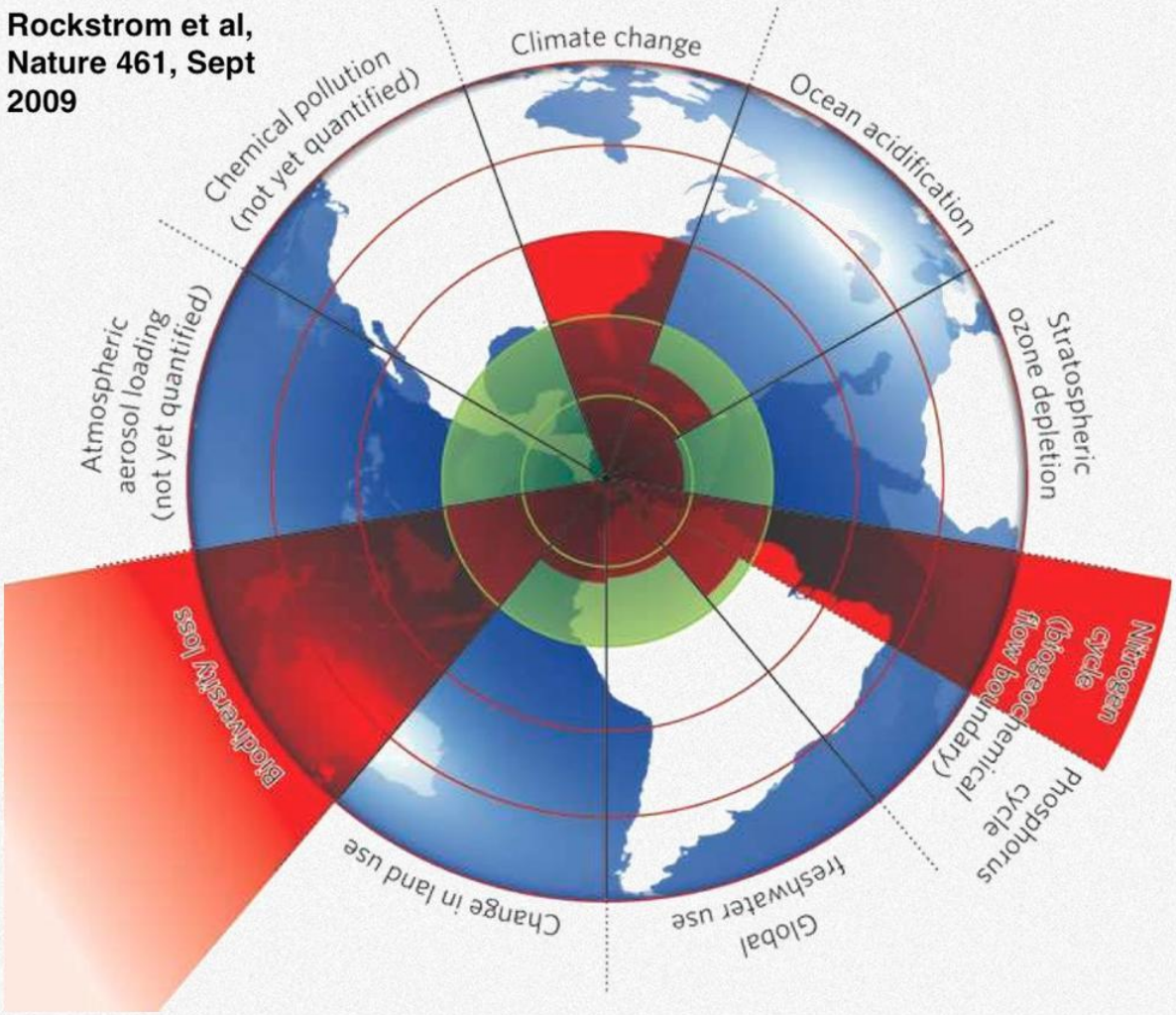
However, current policies would only lead to ca. - 40% GHG emissions by 2050

"We must also develop a broader understanding of innovation. Yes, it is about research and development. But it is about changes to workplace organisation too. And new processes and business models."

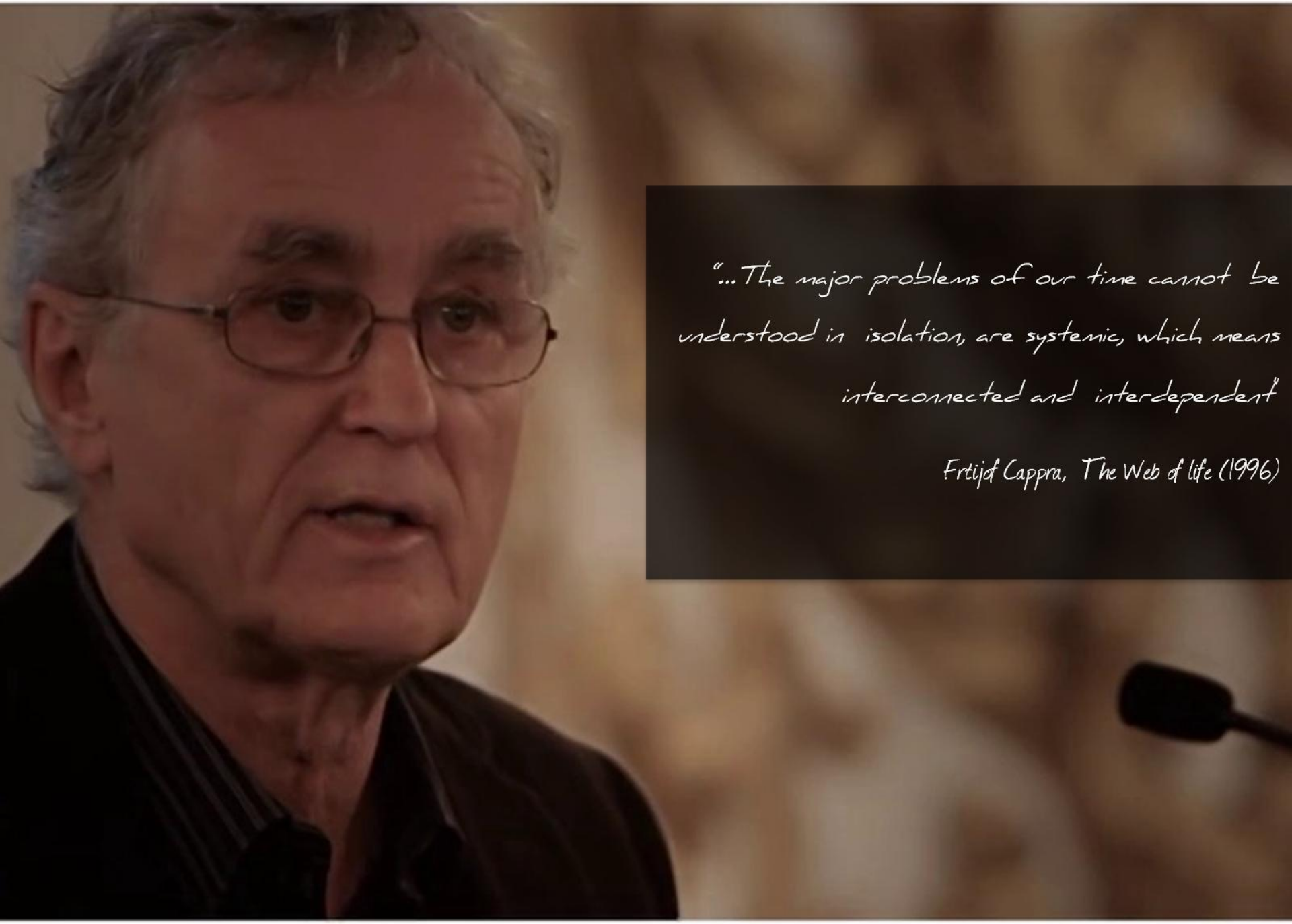
"... "It tends to happen at the inter-section between different disciplines. It is sometimes disruptive, resulting in the downfall of established companies. Often, it is employee or consumer-driven."

President Barroso, speech to the European Parliament. 13 October 2009

And more urgent challenges



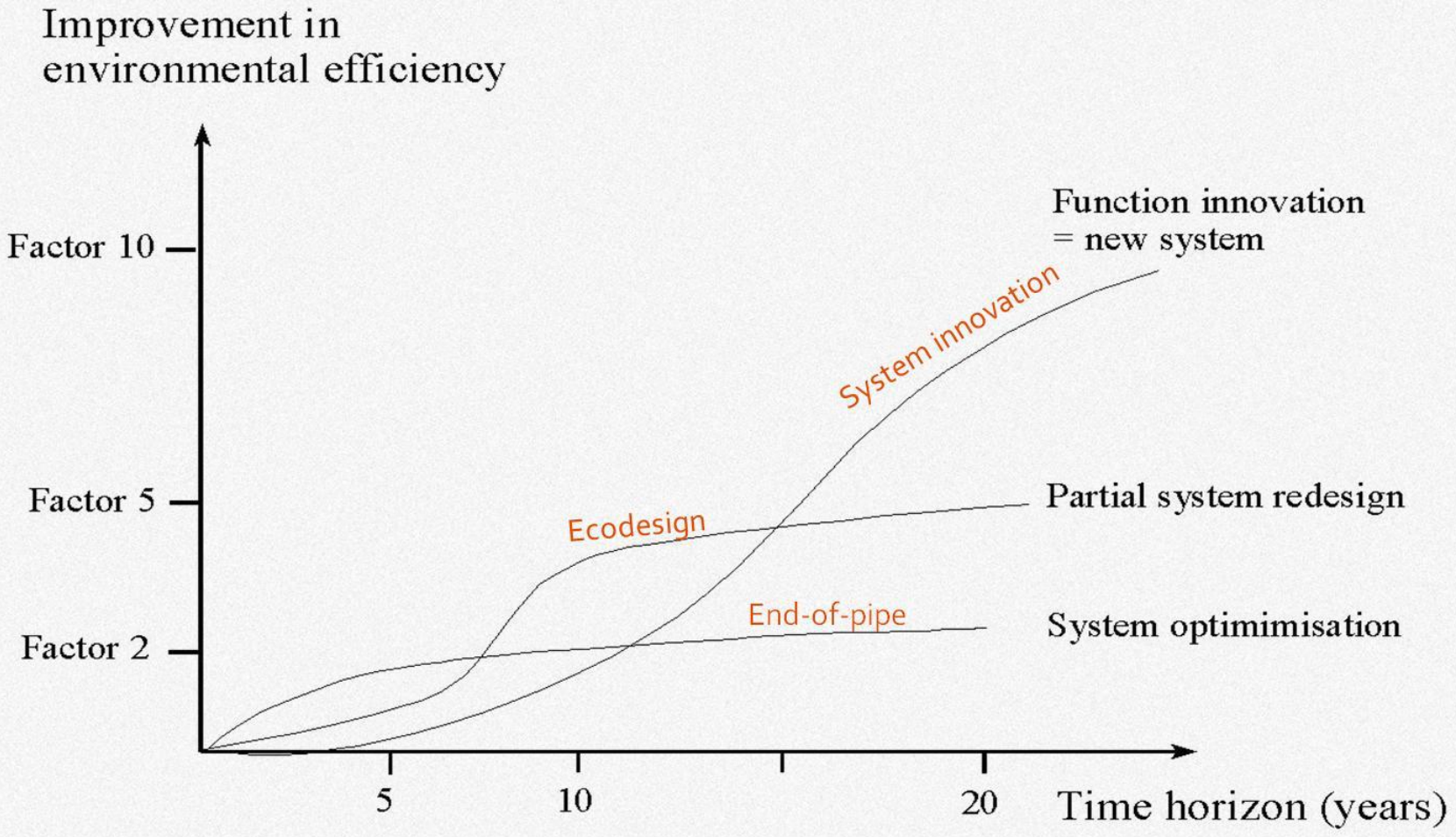
The inner green shading represents the proposed safe operating space for nine planetary systems. The red wedges represent an estimate of the current position for each variable. The boundaries .in three systems: rate of biodiversity loss, climate change and human interference with the nitrogen cycle, have already been exceeded.


"...The major problems of our time cannot be understood in isolation, are systemic, which means interconnected and interdependent"
Fritjof Cappra, The Web of life (1996)

Problems solving approach

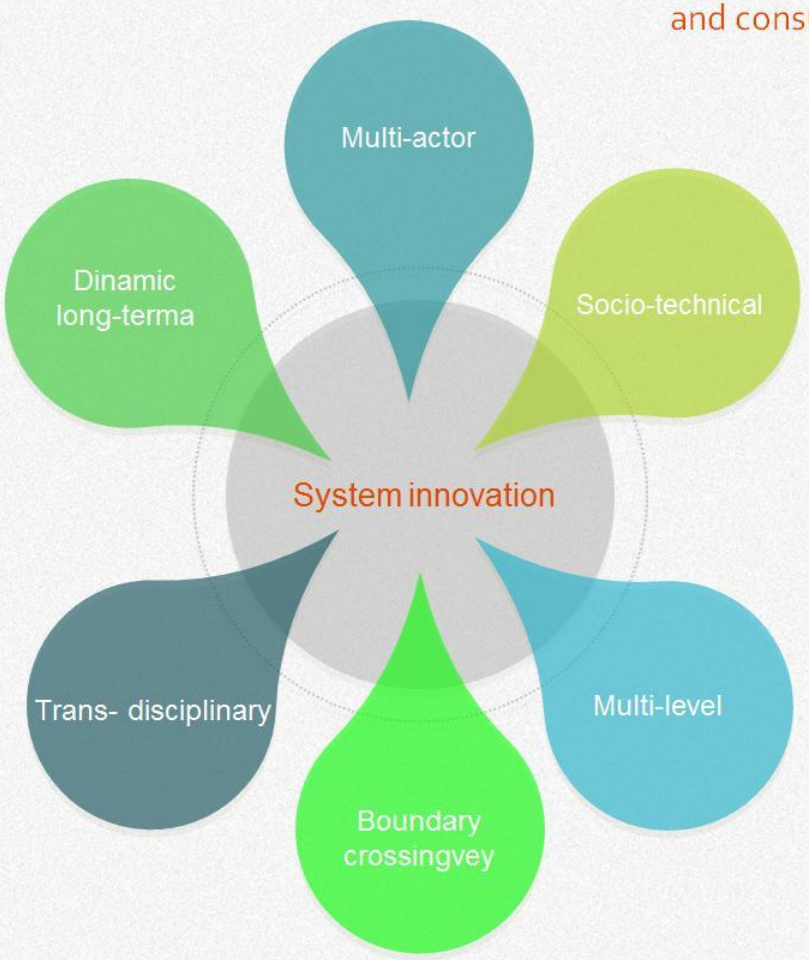
	ACTORS	DRIVERS
1960/70 : END OF PIPE. Production process and products unaltered. Come out the concept of circular economy.	Specialists	Reactive / Minimization
1970/80 : PROCESS INNOVATION. Focus on changing industrial processes. "Cradle to Cradle" ideas are brought up.	Managers	Receptive/ Optimization
1980/90 : ECO-DESIGN. Change adaptation of products . Ecolabel, Footprint… Sustainable development concept is broadly accepted.	Sector	Constructive/ acceleration
1990- : SYSTEM INNOVATION Focus on systems' functions . Spring ideas such as Socio-technical transitions, green economy, low carbon economy.	Society	Proactive/ vision

Potential environmental gains



System innovation

Redesign of functions and/or networked production and consumption chains. It is a broad concept, a new territory outside technological innovation which entails a challenge lead process, in which all actors and all regions are involved, not only the business sector, but also public authorities at national, regional and local level, civil society organizations, trade unions and consumers.



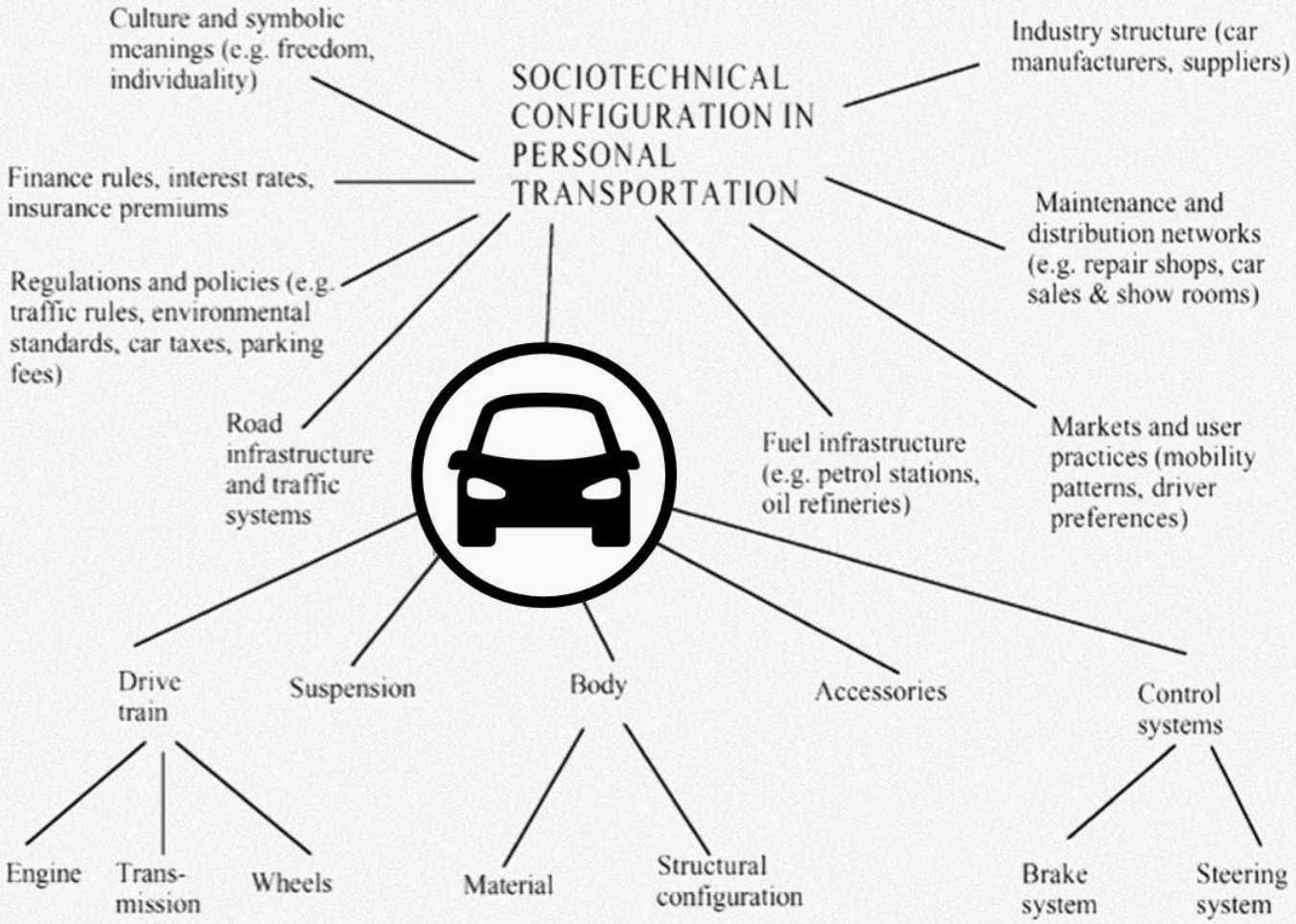
Eg:

- Transport
- Housing
- Agriculture
- Energy production chain
- ..

Innovation in *systems of practice and provision*, not single innovations in products and processes. Think of:

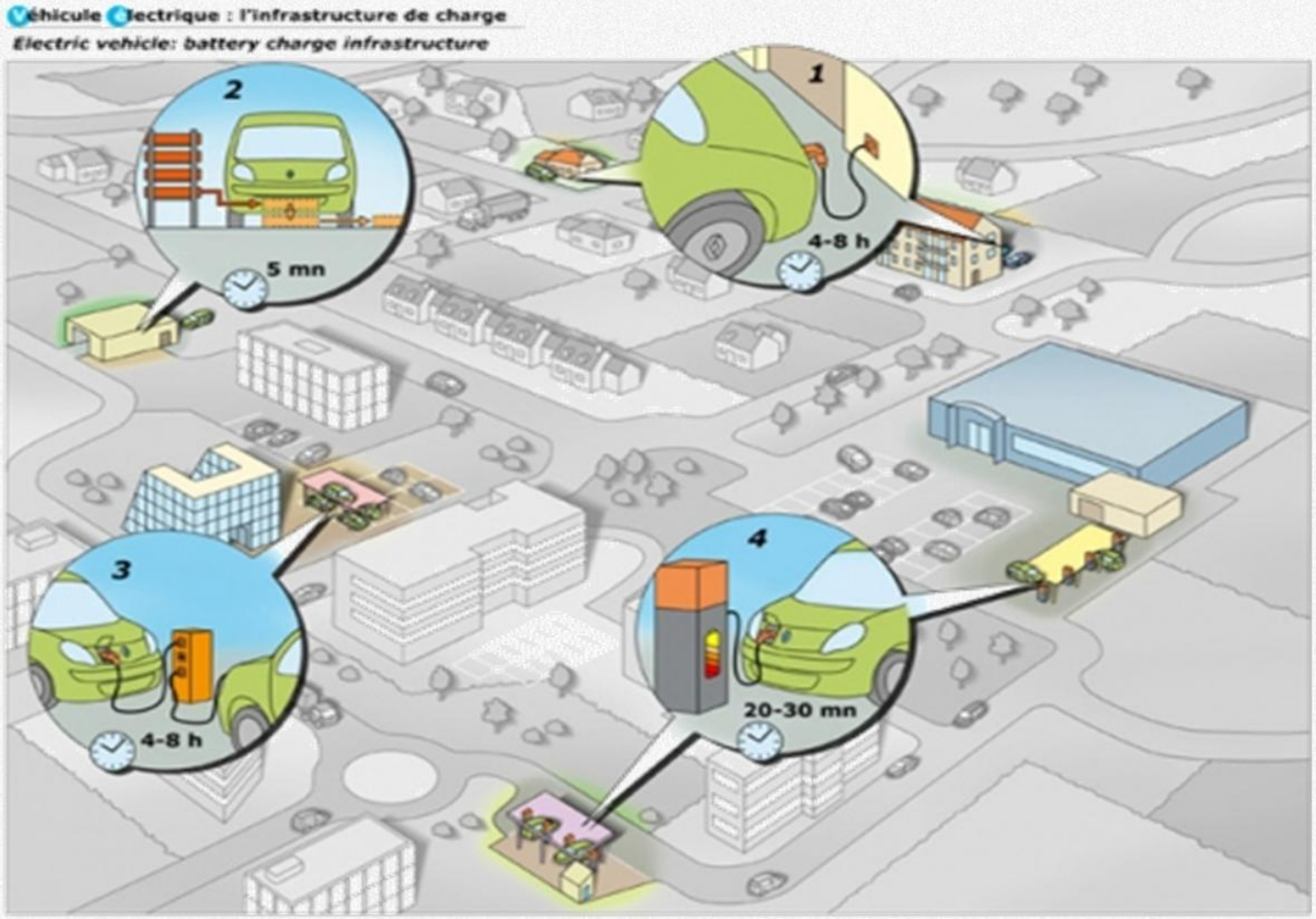
Transport system: how people move, why..
Housing: In what houses people live, how they use their houses, what they find important, when they would be willing to move
Building: the system of how

Socio-techical innovation, not just technical innovation

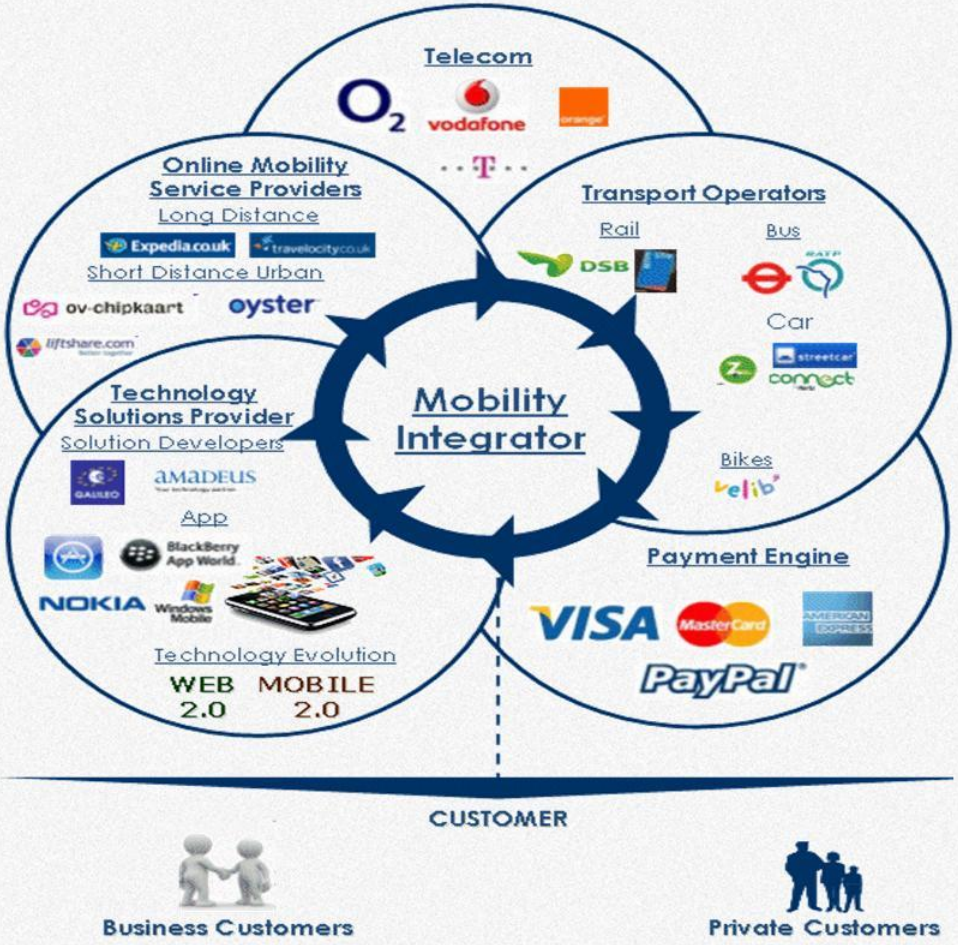


Imagine an electric car in the middle. What is the impact on the topics/parts around the picture?

Innovation in infrastructure and behaviour



Innovation in multi-actor networks

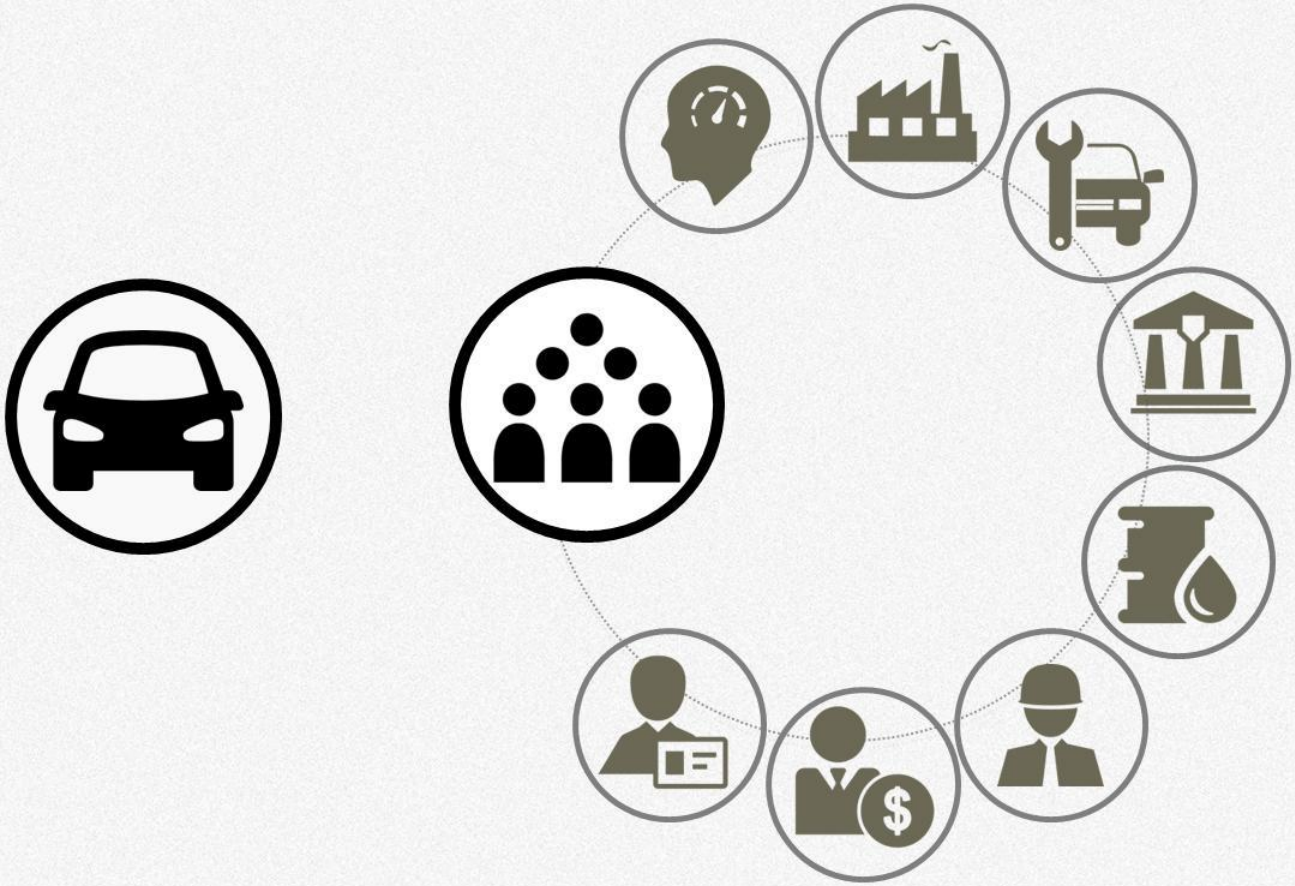


Source: Frost & Sullivan

**The company logos mentioned are only for descriptive purpose*

Need to deal with complexity

- Cross-boundary and trans-disciplinary work.. Eg. people from government, civil societies, business, research, NGO´s, People with financial, sociological, technical expertise…
- multi-societal layers and the complexity and dynamics involved.
- Combine a long-term vision and near-term implementation



Need to monitor changing context, reflect and adapt works

Monitor, including landscape developments, regime, other niches. Such monitoring included giving attention to questioning of underlying assumptions such as social values and the willingness to change course if the innovation does not match these assumptions

Reflect not only in terms of did I do the things that I planned to do but also did I do, or am I still doing the right things, given the long-term goals and changing environment?

EXAMPLE: ENERGIESPRONG

https://www.youtube.com/watch?v=IYIa_JlcR30

https://www.youtube.com/watch?v=57FOoJE9Ykg

CLIMATE-KIC
2015

Pioneers into Practice Programme