



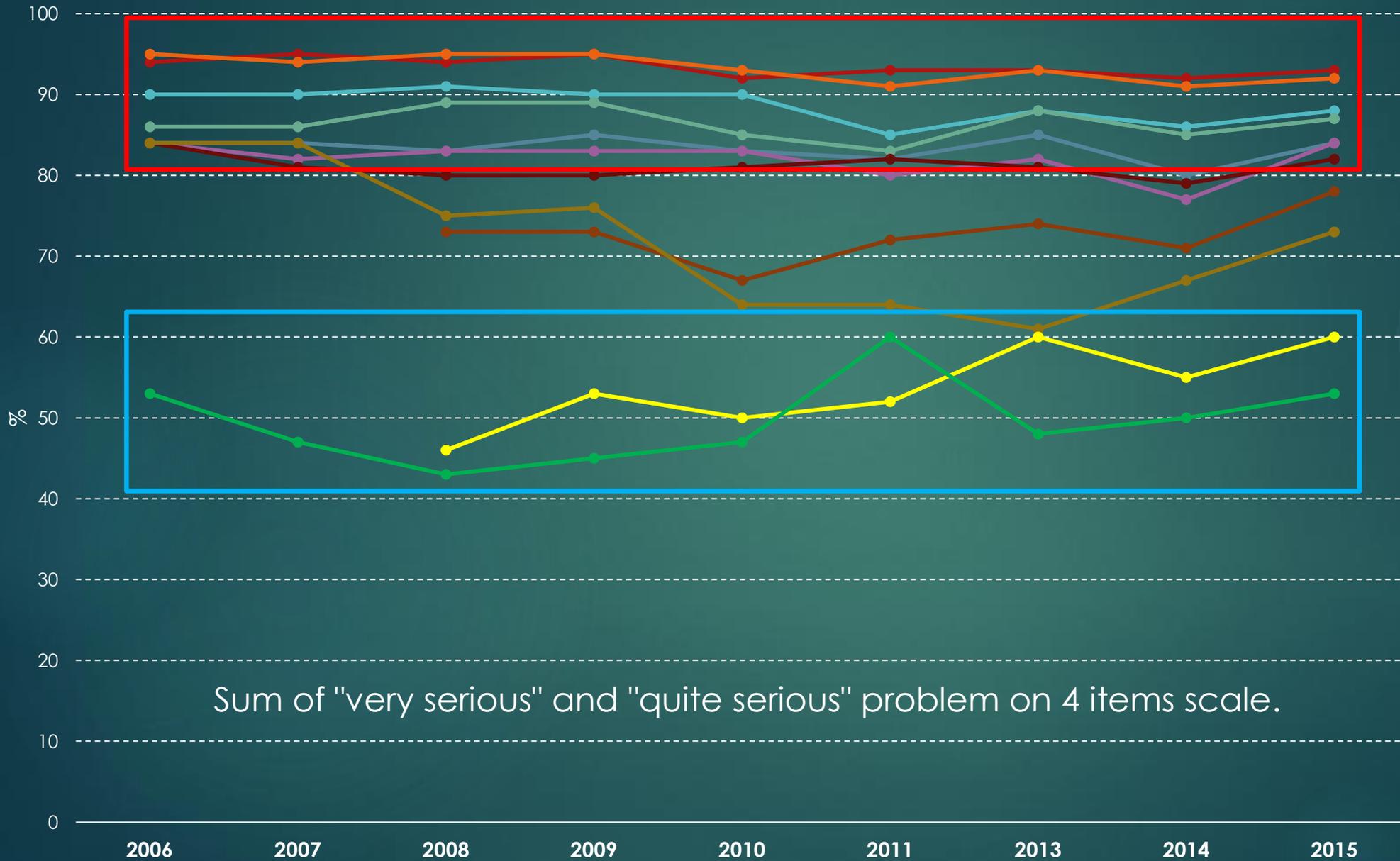
Public perception of global challenges and risk issues with regards to Bioeconomy

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Czech population on global problems



Sum of "very serious" and "quite serious" problem on 4 items scale.

Higher education – higher concern

- Waste accumulation
- Drinking water pollution
- Lack of drinking water
- Decrease of rainforests
- Overuse of resources
- Biodiversity loss
- Pollution of soil

- Overpopulation
- Climate change
- GMO food
- Nuclear energy

Higher living standard – lower concern

Czech population and (bio) technology

- ▶ **Relative** acceptance of nuclear energy, nanotechnology, animal cloning, GMO food, regenerative medicine (though often not having much information)
- ▶ Support of biofuels
 - ▶ 2010 data, might have changed
- ▶ Trust to all actors in the case of biotechnology (Are they doing good job for society?)
 - ▶ Medical doctors, universities, consumer organisations, ethical committees, media, EU, national government, retailers, industry
 - ▶ Interesting results, Czech usually show low level of trust (especially towards state and politicians)
- ▶ Relative technological optimism and trust to science and engineering

Risk and risk perception

- ▶ Risk is the potential of gaining or losing something of value.
- ▶ Risk perception is the subjective judgment people make about the severity and probability of a risk, and may vary person to person.
- ▶ Realistic approach
 - ▶ Objective risk – defined by experts, based on probability and impact, risk-benefit analysis
 - ▶ Subjective risk – lay people's perception, not correct (information deficit)
- ▶ Weak constructivism – risk exists, but its importance is socially constructed
- ▶ Strong constructivism – in fact no risk exists (everything can be risk), risk is what is labelled as risk (used to control the society)

Risk perception

- ▶ How many dimensions does risk have?
 - ▶ One or two – probability and impact (expert assessment)
 - ▶ More – usually lay people: novelty/dread; knowledge/voluntariness
- ▶ Importance of psychological, cultural and social factors
 - ▶ Traditional societies – lower effort to forecast and manage risks (coming from God or nature)
 - ▶ Non-organized responsibility in case of catastrophes
- ▶ Traditional – Industrial/Modern – Post-modern society

Risk society

- ▶ Anthony Giddens, Ulrich Beck – 1980s and 1990s
- ▶ Traditional societies faced risks that were non-human
- ▶ Industrial societies create many new risks (manufactured risks)
 - ▶ Pollution, nuclear energy, GMO, etc. – most of them are hard to perceive
- ▶ New risks are not manageable side-effect of modernity, but its main product
- ▶ Industrial/modern society was technologically optimistic, new “risk” society as post-modern is more reflexive (clash of different rationalities)
- ▶ Organized irresponsibility – there are no “others” to be blamed for the problems
- ▶ Critique: e.g. Mary Douglas – the new risks are not bigger than the traditional non-human, just our risk perception is higher

Risk perception diagram

The Nested Influence Diagram for Risk Perception

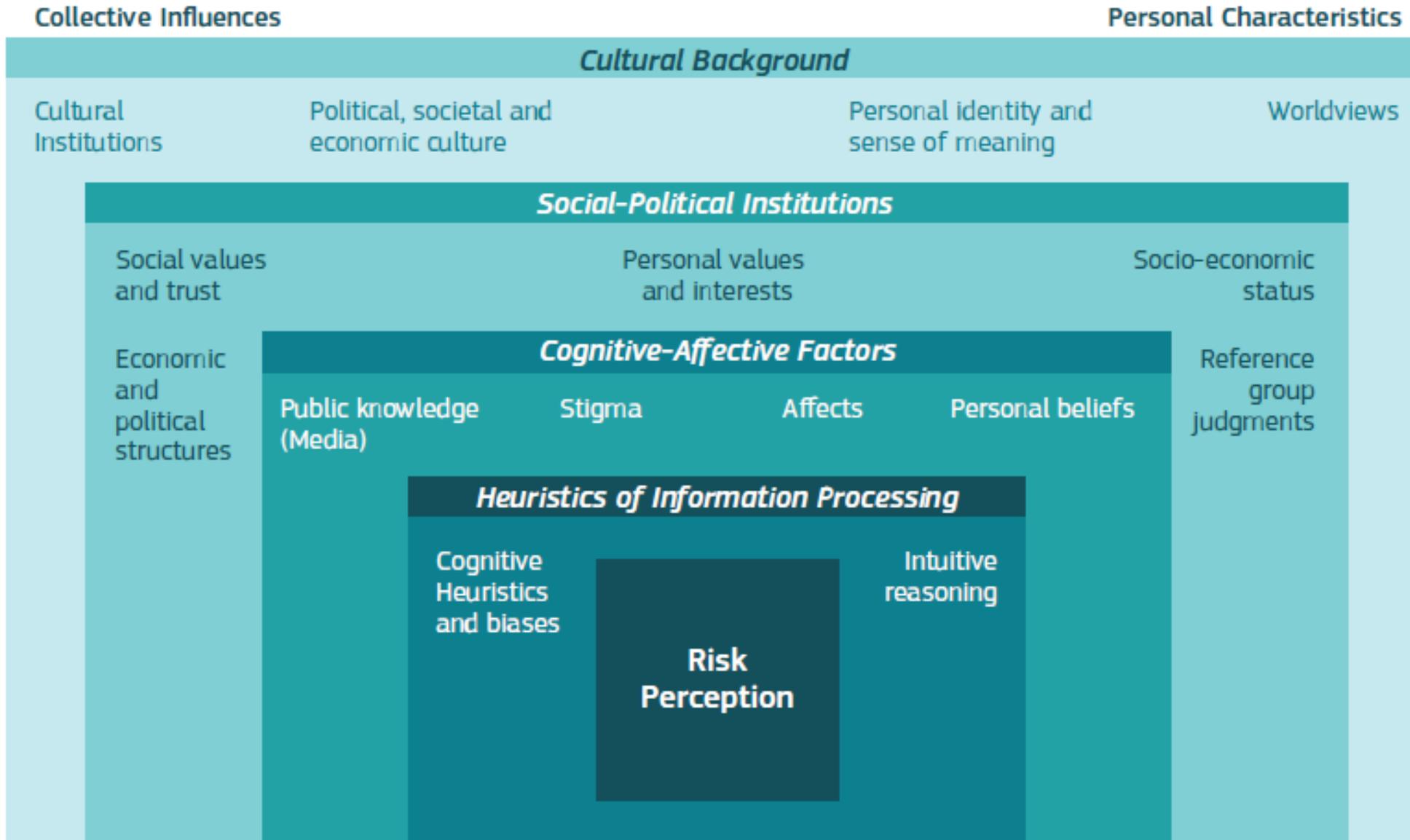


Figure 2. The multiple influences that interact to form risk perception (modified from Renn & Rohrman, 2000b).

Cognitive map of risk perception

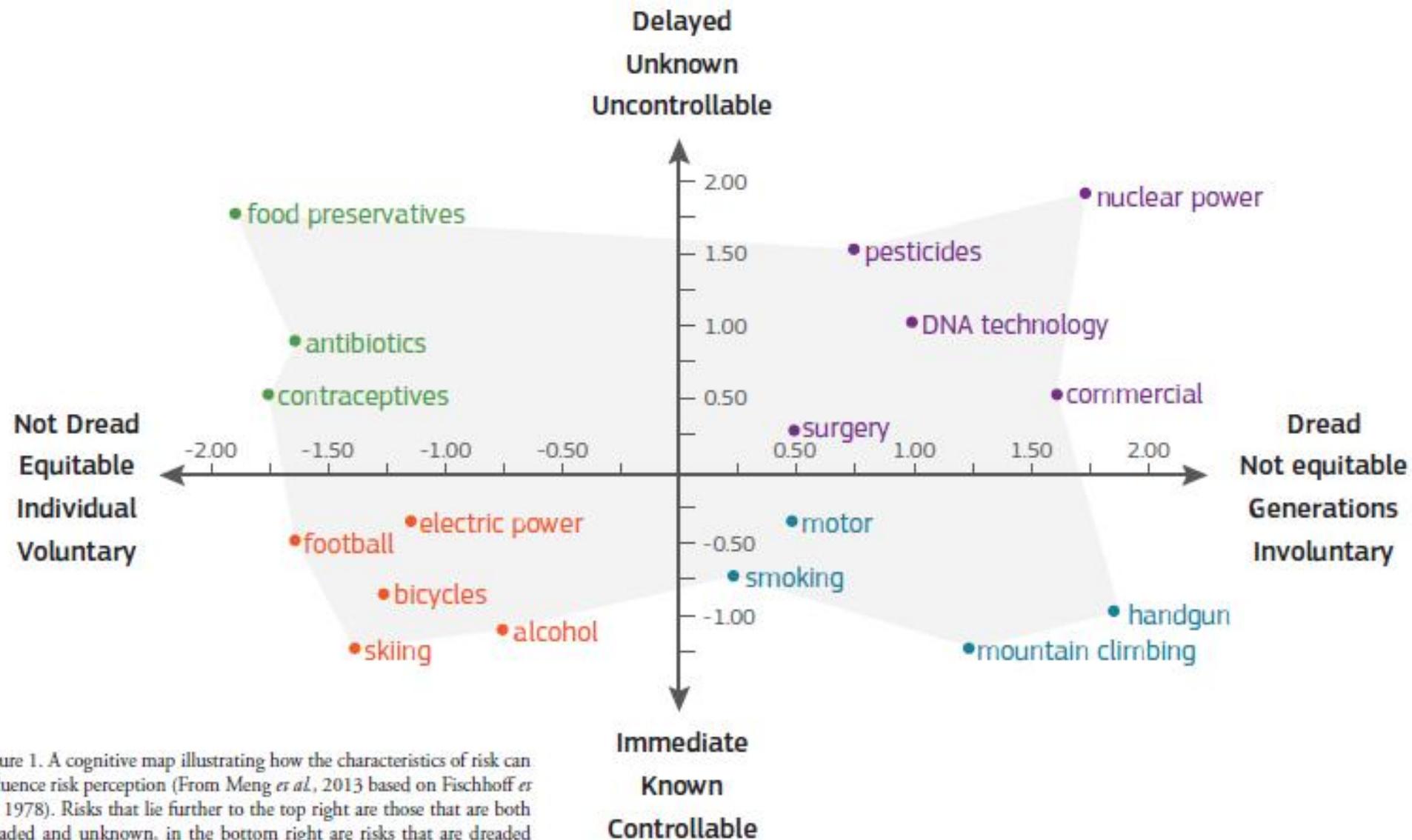


Figure 1. A cognitive map illustrating how the characteristics of risk can influence risk perception (From Meng *et al.*, 2013 based on Fischhoff *et al.*, 1978). Risks that lie further to the top right are those that are both dreaded and unknown, in the bottom right are risks that are dreaded but not unknown. In the top left are those that are unknown but not dreaded and finally risks that are neither dreaded nor unknown fall towards the bottom left.

Importance of risk communication

- ▶ What is goal of risk communication?
- ▶ Who will participate?
 - ▶ Identify stakeholders and their concerns.
- ▶ Risk communication is not one-way (informing lay public or non-educated stakeholders)
- ▶ Key importance of trust
 - ▶ Competence, openness, sharing the same values
- ▶ Communicate uncertainty
 - ▶ Though the effect may vary in different cultures or countries
- ▶ Work with media
 - ▶ Some specifics: selling stories and controversies, need to catch attention, balance as norm, lack of science educated journalists, various political opinion and neutrality

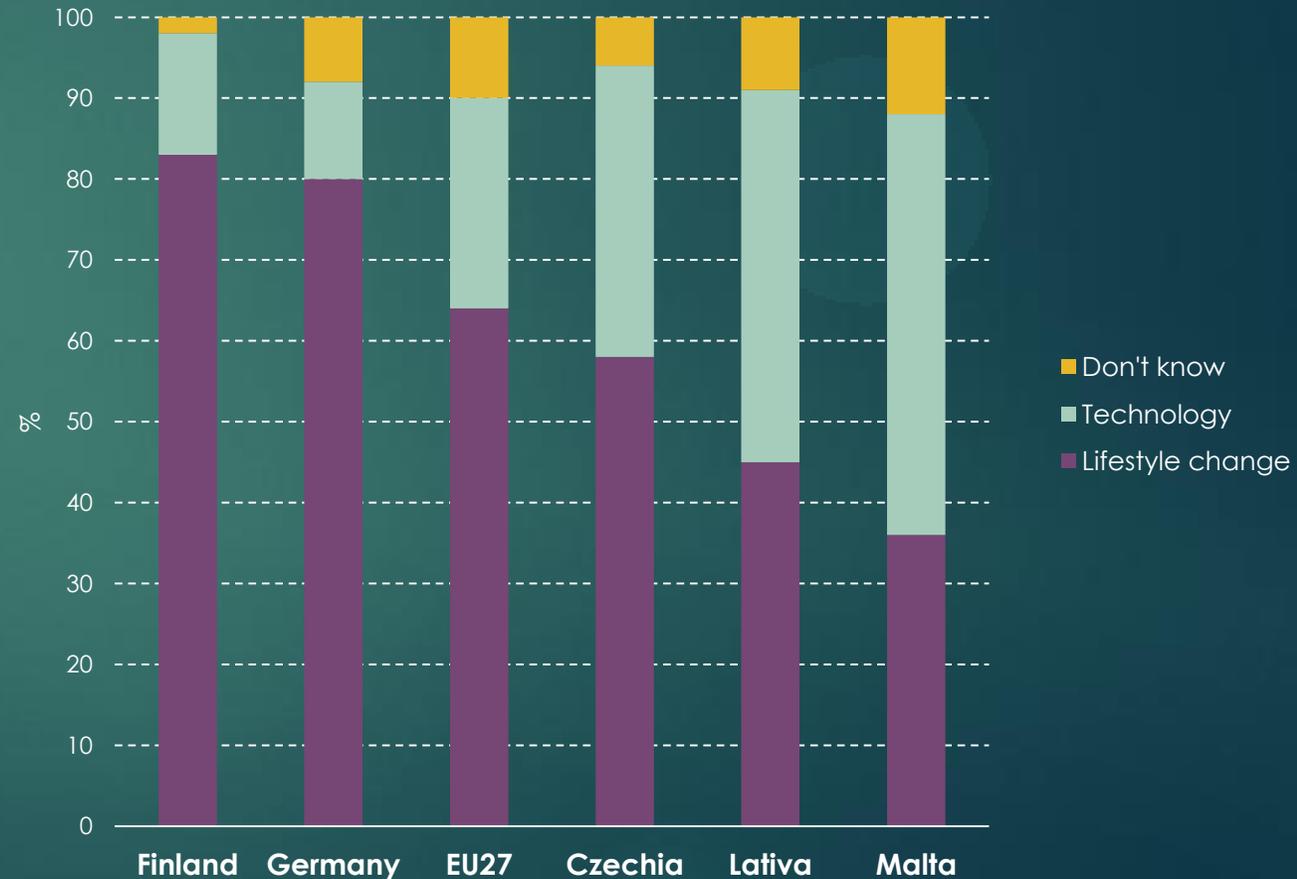
How to mitigate climate change? How much do we trust in technology?

QB26. And which of the following do you think is most important?

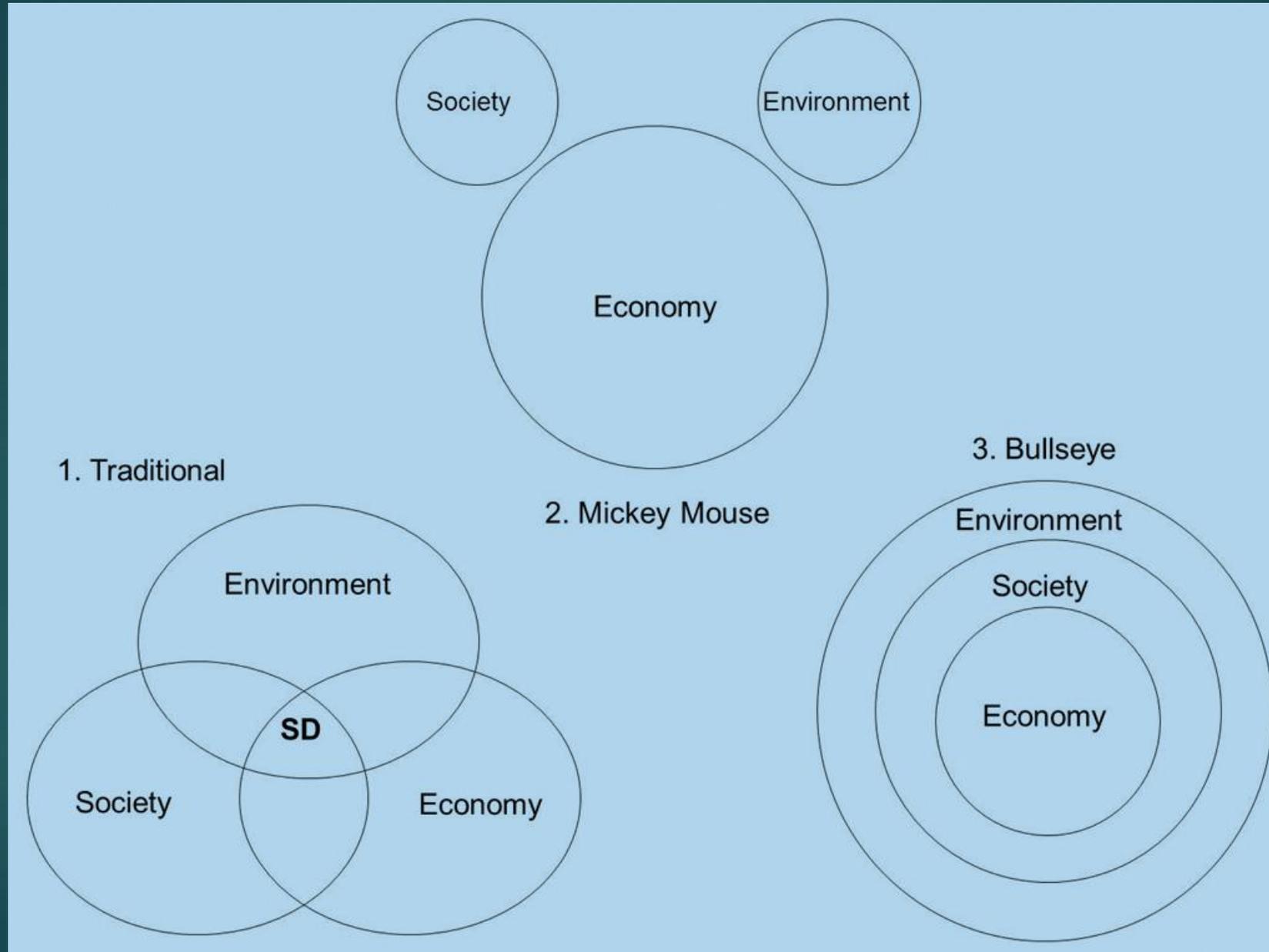


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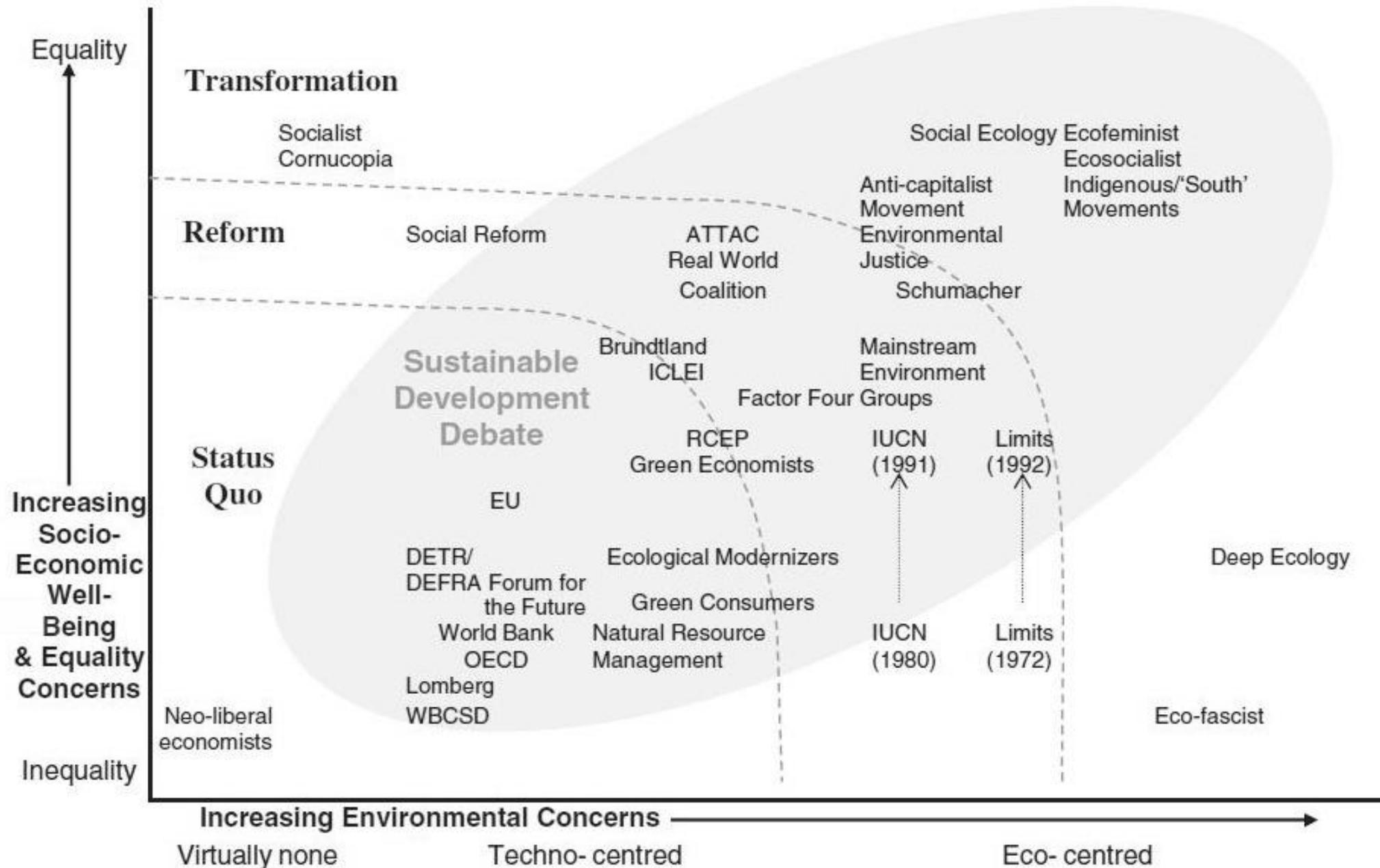
How to mitigate climate change?



Three visualizations of sustainable development



Mapping sustainability



Thank you for your attention!

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