Algorithmic Policy Making
(through hypernudging)
Manual Policy Making

- Public stats
- Literature survey
- BoE calculus, DSG...
- Political leadership
Algorithmic

- EO & Big Data & AI
- Crowd experiments
- NAEC tools
- Hypernudge

Manual Policy Making

+ Public stats
+ Literature survey
+ BoE calculus, CGE..
+ Political leadership
TWI2050 Framework

Overarching narrative (grey)

Sustainable Development Pathways (colored)

Target spaces
2030: achievement of SDGs
2050+: social and economic sustainability within a stable Earth system
SDGs necessitate Algorithmic Policy Making
Transformation: Climate mitigation

Walsh et al. Nature Comm. 2017
LULUCF in pledging for Paris

Source: Forsell et al. 2016
LULUCF in pledging for Paris

Source: Forsell et al. 2016
LULUCF in pledging for Paris

Source: Forsell et al. 2016, Obersteiner et al. 2018
Conclusion

- Free form one shot pledging insufficient
- Inconsistent aggregation of RLs and hot air
- SDG compatibility!?
Scenathon [ˈscɪnəθən]
Scenario + Marathon

A SCENATHON is a time restricted scenario exercise building solution pathways.
Regional zooming allows detailed spatial representation of land (50x50km) and introduction of regional policies.

Food, Agriculture, Biodiversity, Land and Energy (FABLE)
Target and rule setting
Linker machine

Trade consistency

Country A

Bilateral coordination

Country B

Excel-Tool, Partial equilibrium Models, Agent-based Models
Australia pledging to increase maize production.

Frank Sperling and Valeria Javalera-Rincon moderating the "market" for milk and maize trades.

India pledging to reduce milk import.
Conclusion

• “Manual” coordination of 20 sophisticated country teams around 6 goals does not deliver the grand transformation

• Simulation results indicate that reinforcement learning algorithms can hyper-nudge countries into a transformation in few iterations
  – If the algorithm has access to the country tools for learning
  – Learning from observed actions is much less efficient
Perspective: Crowd-sourcing and Hypernudging

Technical and Policy nudge